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REPTILES AND AMPHIBIANS OF TEXAS

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REPTILES AND AMPHIBIANS OF TEXAS

By JOHN K. STRECKER,

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The present catalogue of Texas reptiles and amphibians is compiled as the result of more than twenty years' study in the great field of Herpetology in this State. While I claim that it includes the majority of these animals that inhabit this vast territory, I am willing to confess that in many cases I have not a single record from many large counties, nay, almost entire sections, and that future work will probably result in many additions to the list, not only of known species, but of several new to Science.

I have either personally collected, or handled in the course of my museum work, 141 of the animals here enumerated. By this I mean Texas collected specimens. Of this number, 120 species have been captured in their haunts. I have collected in many different localities in almost every section of the State, including the following counties, arranged by district: Henderson, Cherokee, Smith, Nacogdoches, Angelina, San Jacinto, Liberty, Harris, Bexar, Bandera, Medina, Refugio, Bee, Matagorda, McLennan, Falls, Robertson, Limestone, Bosque, Bell, Coryell, Travis, Burnet, Llano, Hays, Comal, Armstrong, Tarrant, Somervell, Palo Pinto, Midland, El Paso, Presidio, Brewster and Jeff Davis. The number of different species and subspecies collected in McLennan County up to the present time is 81. On two trips to Burnet County, in the years 1902 and 1906, 57 species were collected. My trip to Liberty County in 1912 resulted in the compiling of a list of 40. In some localities only a few species were obtained on account of the limited time at my disposal, but more than 30 species were collected in each of 12 counties in the above list, and more than 10 species in each of 20 of them.

In addition to the above, herpetological material has been received at the Baylor Museum from Cameron, Willacy, Live Oak, Neuces, Victoria, Calhoun, Jefferson, Pecos, Garza,

Hockley, Yoakum, Hill, Kaufman, Lampasas, Hale, Potter, Sherman, Lubbock, Crosby, Kendall and Kent counties.

In the literature cited in my bibliography, specimens are on record from the following counties not above mentioned: Anderson, Aransas, Atascosa, Bastrop, Baylor, Borden, Bowie, Brazoria, Clay, Comanche, Cooke, Crane, Crockett, Dallas, Denton, De Witt, Donley, Duval, Edwards, Erath, Fayette, Galveston, Gillespie, Guadalupe, Hardeman, Hardin, Harrison, Haskell, Hemphill, Hidalgo, Hood, Houston, Howard, Kerr, Lavaca, Lamb, La Salle, Lipscomb, Marion, Mason, Maverick, Menard, Mitchell, Oldham, Reeves, Roberts, Shelby, Starr, Sutton, Swisher, Tom Green, Tyler, Upshur, Uvalde, Val Verde, Walker, Ward, Washington, Webb, Wheeler, Wichita, Williamson and Wood.

When one takes into consideration the fact that during the past twenty years I have collected more than 80 species and subspecies in my own county, he can readily understand that this is due entirely to the reason that I have collected very closely, searching every possible habitat for species that I had not previously found. On several occasions I have collected specimens of reptiles, not found, so far as I had been able to discover, within my own county, only a mile or two over the line in the next one. The great majority of cold-blooded animals have special habitats, due to abundance or lack of moisture, to the peculiar physical conformation of the region, to the presence of lagoons, marshes and streams; in some cases due to a food supply governed by the presence of certain insects and the plants on which they feed, and on many other conditions that might be here mentioned.

The study of the habitat associations of Texas reptiles is a wonderfully interesting subject to the herpetologist, but cannot be discussed in a paper necessarily as limited to space as is the present one. The main object of the catalogue is to bring together in a concise form as complete a list of these animals as our present knowledge of their occurrence and distribution in the State will warrant. No attempt is made to describe the different species—the great trouble with the majority of State catalogues is that their

compilers waste valuable space with descriptions that may be found in both scientific and general works on the subject; these descriptions being merely repetitions to the specialist and in many cases almost unintelligible to those laymen who require a more popular work.

Two excellent books of a popular character have been published by Doubleday, Page & Co., in their "Nature Library." These are "The Reptile Book," by Raymond L. Ditmars, and "The Frog Book," by Miss Mary C. Dickerson. These works contain magnificent illustrations and splendid popular descriptions of all but a very few of the crocodilians, turtles, lizards, snakes and frogs of North America. Unfortunately, no popular work on the tailed amphibians has ever been published. For technical descriptions of these animals, the reader is referred to the splendid work of Cope on "The Batrachia of North America," published in 1889 as a Bulletin of the United States National Museum. This book is rare, but copies are to be found in many public and college libraries.

For more technical descriptions of the reptiles, exclusive of the turtles, than are contained in Ditmars' book, reference may be made to Cope's "Crocodilians, Lizards and Snakes of North America," published in the Report of the National Museum for 1898. This can be obtained from almost any dealer in second-hand books, either as a paper bound separate or bound in with the full report.

At the present time, the popular work of Ditmars above mentioned contains the only collected descriptions of the North American turtles, and these are entirely too brief to be of much value to the specialist. If one is greatly interested in the *Testudinata* and can get access to Volume I of Prof. Agazziz's "Contributions to the Natural History of the United States," entitled "The Geographical Distribution of the Testudinata," and the several papers by George Baur published in the Proceedings of the American Philosophical Society, he will find them to contain a wealth of valuable information. There are many other books and papers in the bibliography that will prove of great value to the student if he is in a position to consult them. This bibliography is

arranged in chronological order, and in addition to the title of each paper, lists all species therein described as new by the author. If a name is very obsolete or if the so-called species is merely a well known form redescribed, the proper modern name is added in parenthesis.

This bibliography includes every book, paper or article, referring in whole or in part to Texas reptiles and amphibians, that I have been able to accumulate in the collecting together of a general herpetological library, those I have found in my browsings through public, university and private libraries, and in several cases those discovered by my correspondents.

In the preparation of my catalogue, I have received assistance from many sources, and here take occasion to acknowledge my indebtedness to the following persons: To Mr. Clement S. Brimley of Raleigh, North Carolina, for lists of material received by him from several Texas localities and for looking up references inaccessible to me; to Hon. J. D. Mitchell, Victoria, Texas, for a list of the reptiles of Victoria County and for specimens from a number of localities; to Mr. Witmer Stone of the Philadelphia Academy of Natural Science and the late Arthur Erwin Brown of Philadelphia, for invaluable assistance in looking up references; to Dr. Leonhard Stejneger, United States National Museum, Washington, D. C., and Miss Mary C. Dickenson, American Museum of Natural History, New York City, for the loan of specimens belonging to their institutions; to Mr. Julius Hurter, St. Louis, Missouri, for publications, specimens and lists of material collected on his several Texas trips; and to Messrs. Scott Cotten, formerly of Post City, Texas, but now of Havana, Cuba; R. C. Reeder, Stratford, Texas; Rev. H. E. Fowler, Lindale, Texas; Aubrey L. Gooch and Harold Gooch, Austin, Texas; Louis Garni, San Antonio, Texas; J. D. Isaacks, Cleveland, Texas, and Professors J. L. Kesler and W. T. Gooch, Baylor University, Waco, Texas, for material from many Texas localities.

The catalogue, such as it is, is submitted to the indulgence, and, it is hoped, merciful criticism of the reader.

REPTILIA

CROCODILINI

CROCODILIDÆ

1. ALLIGATOR MISSIPPIENSIS *Daudin*. Alligator.

At one time, the range of the alligator included the whole eastern half of the State, but it is now principally confined to the extreme eastern and southeastern counties bordering Louisiana and the Gulf of Mexico. Old settlers claim that in former years this saurian was abundant all along the Brazos River, even to its sources, and that there is an Indian tradition to the effect that the animals were driven out of Northwestern Texas on account of a long-continued drouth and came overland in immense droves, headed in the direction of the Gulf coast. That the alligator is an old inhabitant of East-Central Texas is indicated by numerous remains occurring in Pleistocene deposits in McLennan and adjoining counties. While it is not likely that our modern reptile was a contemporary of the Columbian elephant, the Texas camel, the sabre-toothed tiger and the giant edentates, yet its remains are found together in the same gravel deposits.

Within the past five years, five alligators have been captured along the Brazos river from Waco to a point about ten miles south. Four of these were from two and one-half to four feet in length, while the fifth was a trifle more than eight feet. Only a few years ago an eight-foot specimen was captured in the Trinity bottoms, only a few miles from Dallas. In some of the forest-enclosed lakes of Eastern Texas, in Liberty, San Jacinto and the adjoining counties, large, solitary alligator bulls are claimed to still hold their own against all comers.

Dr. Mearns, in his work on the Mammals of the Mexican Boundary, states that the alligator has once been taken about twenty miles south of Fort Clark,

Kinney County. This carries its range west of the 100th Meridian.

In the course of a very few years the great saurian will have become one of the rare animals of Texas.

TESTUDINATA

ATHECÆ

DERMOCHELIDÆ

2. *DERMOCHELYS CORIACEA* *Linn.* Trunk Turtle: Leather-back Turtle.

This enormous sea turtle, which is said to attain a weight of more than a thousand pounds, is a rare visitor to the Texas coast. I have personally seen but one Texas specimen, a large one nearly six feet in length, which was captured off the coast of Brazoria County.

THECOPHORA

CHELYDRIDÆ

3. *CHELYDRA SERPENTINA* *Linn.* Snapping Turtle.

This large turtle is not uncommon in the lakes and streams of the eastern half of Texas, but has been overlooked by the many herpetologists and collectors who have visited the State. In fact, Arthur Erwin Brown rejected it from his faunal list of Texas reptiles on account of his being unable to find specific locality records in the literature. Hon. J. D. Mitchell records it from Victoria County in the manuscript list sent to me; and Mr. Louis Garni captured it in Cibolo Creek in Kendall County. I have examined specimens from the San Antonio River, Bexar County, and have captured examples in the San Jacinto River, Liberty County; Neches River, Smith County; Arroyo Blanco, Bee County; Arroyo Medio, Refugio County; San Marcos River, Hays County,

and in a number of watercourses in Burnet and McLennan counties.

4. *MACROCHELYS LACERTINA Schweigger*. Alligator Snapping Turtle.

This, the largest of all North American fresh-water turtles, is by no means a common animal in the State of Texas. Its occurrence here is first mentioned by Baird in his list of the reptiles of the Mexican boundary, but he does not cite any localities, merely adding "Lowlands of Texas" under its name. Agassiz states that it is found at Austin. The large specimen exhibited by the National Museum at the Pan-American Exposition was from Southern Texas, but no specific locality was given.

Some years ago, in the San Pedro Springs zoo at San Antonio, I saw a half-grown specimen which was said to have been captured in the San Antonio River. The Baylor Museum collection contains a small example captured by Mr. J. D. Isaacks in the San Jacinto River at Cleveland, Liberty County.

CINOSTERNIDÆ

5. *CINOSTERNUM LOUISIANAE Baur*. Louisiana Mud Turtle.

Eastern Texas, west to the 98th Meridian; south in the coast prairie country to Refugio. Probably a variety of the eastern *Cinosternum pennsylvanicum* Bosc, and Cope records specimens from Dallas under that name.

Mr. C. S. Brimley writes me that he has received specimens of this mud turtle from Austin, Travis County, and Colmesneil, Tyler County. Mr. Julius Hurter of St. Louis, Missouri, collected a specimen at Texarkana, Bowie County. I have collected specimens in the following localities: Laguna Lake, Falls County; San Jacinto River, Liberty County; Arroyo Medio, Refugio County, and Dry Pond, Oak Lake, Brazos and Bosque Rivers, McLennan County.

6. *CINOSTERNUM FLAVESCENS* Agassiz. Yellow Mud Turtle.

This species has a wide distribution, its range covering all but the extreme eastern section of the State. It is the tank turtle of the Panhandle, the trans-Pecos region and the southwestern counties. It is not uncommon as far east as Waco, but does not seem to range much further than the Brazos river lowlands. Hon. J. D. Mitchell has sent me specimens from Victoria, but I have seen neither specimens nor records from the eastern Rio Grande Valley, although it probably ranges through the whole of Southern Texas.

7. *CINOSTERNUM HENRICI* Le Conte. Henry's Mud Turtle.

Trans-Pecos Texas, ranging east of the Pecos River, crossing the Edwards Plateau almost to San Antonio. Cope records this species from Medina, Medina County. Mr. Brimley has received specimens from El Paso, and the Baylor Museum collection contains one from the same locality.

8. *AROMOCHELYS TRISTYCHA* Agassiz. Southern Musk Turtle.

This turtle is probably, as Mr. Brimley suggests, a mere variety of *Aromochelys odoratus* Bosc., and many specimens are hardly distinguishable from that species. It is supposed to always differ from *odoratus* by having the carapace more elongated, the central shield of the plastron narrower, and a slightly different coloration, especially about the head. My experience would indicate that musk turtles were not very common animals in Texas, while on the other hand the species of *Cinosternum* are wonderfully abundant. The southern musk turtle is distributed over Eastern Texas, ranging west to the granite country in Llano and Burnet Counties and south into Bexar and Medina counties. In some localities it is associated with *Aromochelys carinatus* Gray.

9. *AROMOCHELYS CARINATUS* Gray. Keeled Mud Turtle.

I have collected this species in only one locality, i. e., the San Jacinto River, Liberty County. It is probably more or less common in many localities in Eastern Texas, but very little work has been done along herpetological lines east of the Brazos Valley and the species may be much rarer than I at present suspect. Yarrow, in his Check-list of North American Reptiles, records *carinatus* from the Medina River, San Pedro and San Jacinto, all localities in Southern Texas. Mr. Louis Garni sent me a young example collected near Boerne, Kendall County.

TESTUDINIDÆ

10. *CHRYSEMYS TROOSTI* Holbrook. Troost's Terrapin.

Mr. Garman records a specimen of this turtle from Deming's Bridge, Matagorda County.

11. *CHRYSEMYS ELEGANS* Wied. Cumberland Terrapin.

This terrapin is distributed over the entire State. It has been collected at Texarkana and at Brownsville. It is abundant in springs and streams in Northwestern Texas and has been reported from as far west as Pecos.

12. *CHRYSEMYS MOBILENSIS* Holbrook. Mobile Terrapin.

This larger representative of the southeastern *Chrysemys concinna* Le Conte probably occurs in Texas, although I have not been able to obtain a specimen. The literature in regard to this species and *Chrysemys texana* Baur is so hopelessly confused that it is an impossibility to decide to which one a reference really applies. If the Alabama specimens that I have examined are really *mobilensis*, it is a species very distinct from *texana*. Dr. Yarrow, in his North American Check-list, records two specimens of *Chrysemys concinna* from Brownsville. I suspect that this reference applies to *mobilensis*. As this turtle has so often been recorded from Texas, I

prefer to include it in my catalogue, rather than to exclude it on the supposition that all Texas terrapins of this type belong to Baur's species.

13. *CHRYSEMYS TEXANA* Baur. Texas Terrapin.

Mr. Brimley informs me that he has received specimens of this turtle from Colmesneil, Tyler County, and Mr. Hurter lists it from Paris, Lamar County. Mr. Mitchell sent me an example from Victoria, and I have personally collected it in the following localities: Calamity Creek, Brewster County; Laguna Lake, Falls County; Morgan Creek, Burnet County; Arroyo Medio, Refugio County; Dry Pond and Brazos River, McLennan County. All of the published records for *Chrysemys mobilensis* from the trans-Pecos region probably refer to this species.

14. *CHRYSEMYS BELLII* Gray. Bell's Terrapin.

The Baylor Museum collection contains a single example of this species from El Paso, collected by Messrs. Townsend and Barber. Baird records it from the Guadalupe Mountains under the name of *Chrysemys oregonensis* Agassiz.

15. *MALACLEMYS LITTORALIS* W. P. Hay. Texas Diamond-back Terrapin.

The type of this species came from Rockport. The author gives its distribution as "salt marshes and channels along the coast of Texas and outlying islands." He further says: "All of the terrapin of this species that I have seen alive came from Rockport, Texas, but they are said to occur southward as far as Galveston." (Bulletin U. S. Bureau Fisheries, 1904, Vol. 24, p. 18.)

16. *GRAPTEMYS GEOGRAPHICA* Le Seur. Geographic Terrapin.

Mr. Brimley has received specimens of this turtle from Austin. I have collected it in the Colorado River, not far from that city, in the Brazos River,

McLennan county, and in Morgan and Delaware Creeks, Burnet County.

17. *GRAPTEMYS OCULIFERA* Baur. Occellated Terrapin.

This species is of local distribution and by no means common. I have collected it in only two localities, i. e., Morgan Creek, Burnet County, and a small artificial lake near Athens, Henderson County.

18. *TERRAPENE TRIUNGUIS* Agassiz. Three-toed Box Tortoise.

Eastern Texas, south to Bexar and Matagorda Counties. The following are published localities for this species: Gainesville (Cragin); Deming's Bridge, Matagorda County (Garman), and San Antonio (Yarrow). Mr. Brimley has received it from Colmesneil and I have collected it at Cleveland, San Marcos and Waco. It is exceedingly rare in East-Central Texas, where its haunts are confined to the heavily wooded river bottoms. Texas specimens are much more uniform in their coloration than those from Missouri and Arkansas.

19. *TERRAPENE MAJOR* Agassiz. Large Box Tortoise.

Known only from a few localities in the southern part of the State. Stone records it from Devil's River, Val Verde County. Several years ago I captured a single adult specimen near Palacios, Matagorda County. The specimen of *Terrapene carolina* from San Antonio, listed by Dr. Yarrow, probably belongs here. Yarrow recognized the differences between *carolina* and *triunguis*, but not between the former species and *major*. *Terrapene carolina*, so far as known, does not occur west of the Mississippi River.

20. *TERRAPENE ORNATA* Agassiz. Painted Box Tortoise.

This handsome species is found over the entire State. In the heavily wooded counties of Eastern Texas, however, it is very local in its distribution, being found only in the scattered prairie districts.

The published records for this species are Dallas (Cope), Deming's Bridge (Garman), Pecos (Brown) and Corpus Christi (Taylor). I have received it from El Paso from Messrs. Townsend and Barber, and Mr. Brimley has it from Colmesneil. Mr. Mitchell obtained it in Victoria County. I have personally collected examples in the following localities: Alpine, Austin, Burnet, Midland, Refugio, Goodnight, Calvert and Waco and the Means' ranch in Jeff Davis County.

21. *XEROBATETS BERLANDIERI Agassiz*. Berlandier's Tortoise.

Recorded from Brownsville by Dr. True. There is a shell of a young specimen from Jefferson County in the Baylor Museum.

22. *XEROBATES BERLANDIERI Agassiz*. Berlandier's Tortoise.

This species is confined to Southern Texas. Cope mentions a specimen from near San Antonio. The Baylor Museum collection contains the shell of an adult collected near Oakville, Live Oak County, by Rev. J. M. Carroll, and several alcoholic specimens obtained at Brownsville by Mr. Bert Hinckley.

23. *CHELONIA MYDAS Linn.* Green Sea Turtle.

Gulf of Mexico. If all the green turtles shipped from the coast country are captured in Texas waters, the animal must be quite abundant. The largest skull of this species that I have ever seen came from Corpus Christi.

24. *CARETTA CARETTA Linn.* Loggerhead Sea Turtle.

Gulf of Mexico. Said to be abundant from Galveston southward.

25. *CARETTA KEMPI Garman*. Bastard Loggerhead.

This turtle must be exceedingly rare in Texas waters. Among a lot of loggerhead skulls collected by Mr. W. T. Battle, I found one that undoubtedly be-

longs to this species. It is labeled "Velasco, Texas coast."

26. *ERETMOCHELYS IMBRICATA* Linn. Hawk's-bill Turtle.
Gulf of Mexico. Apparently rare.

TRIONYCHIDÆ

27. *ASPIDONECTES FEROX* Schweigger. Southern Soft-shelled Turtle.

This species is not uncommon in the eastern part of the State, but has been generally overlooked by collectors. In his North American Check-list, Yarrow records a single specimen from Brownsville. In the Baylor Museum, in a small local collection transferred from the Waco Y. M. C. A., is a small specimen, about eight inches in length, from Bullhide Creek, McLennan County, the first that I had ever seen from Texas. Later I obtained specimens in the Brazos and Bosque Rivers near Waco and in the San Jacinto River in Liberty County.

28. *ASPIDONECTES EMORYI* Agassiz. Emory's Soft-shelled Turtle.

This is the common soft-shelled turtle of the greater portion of Texas. Cope, in his report on the reptiles of Northwestern Texas, states that it is very abundant in streams in the plains region. Brown records it from the vicinity of Pecos. Other published records are Brownsville and New Braunfels (Yarrow), Dallas and Helotes Creek, Bexar County (Cope), Williamson County (Agassiz) and San Antonio (Garman).

SQUAMATA

LARERTILIA

EUBLEPHARIDÆ

29. *COLEONYX BREVIS* Stejneger. Banded Gecko.

This curious little lizard inhabits the entire trans-Pecos region. Eastward in the Rio Grande Valley

it ranges to Eagle Pass and northward to the vicinity of San Antonio. Recorded from Eagle Pass (Ditmars), Sheffield, Pecos County (Bailey), Helotes and San Antonio (Cope). I have a specimen from the foothills of the Chisos Mountains, Brewster County.

IGUNANIDÆ*

30. *ANOLIS CAROLINENSIS* Cuvier. Green Lizard Chameleon.

Eastern Texas from Texarkana to Brownsville in the pine-woods and Gulf Coast counties; in the interior west to Dallas, Falls and Bastrop Counties. The range of this species extends to within half a dozen miles of Waco, but I have never seen it west of the Brazos River in this section of the State.

31. *CROTAPHYTUS COLLARIS* Say. Ring-necked Lizard. Mountain Boomer.

Middle-Western and Northwestern Texas from the Panhandle south to the Pecos River; eastward in rocky districts to Tarrant, Bosque, Coryell and Travis Counties.

32. *CROTAPHYTUS COLLARIS BAILEYI* Stejneger. Bailey's Ring-necked Lizard.

This variety of *collaris* replaces the typical form in the region south and west of the Pecos River.

33. *CROTAPHYTUS RETICULATUS* Baird. Reticulated Lizard.

This rare lizard is known from only a very few localities in the Rio Grande Valley in the extreme

**CTENOSAURA* *sp.* Iguana.

A species of Iguana enters the southern portion of the Rio Grande Valley of Texas, but up to the present time no specimens from that region have been added to any of the scientific collections. Prof. Menger, Principal of the Corpus Christi public schools, informs me that a half-grown Iguana was captured in Neuces County, not far from his town. Mr. Julius Hurter writes that he found a dead *Ctenosaura* in May, 1908, at a point between Brownsville and Rancho St. Thomas, eight miles southeast on the Rio Grande River. This specimen was too badly decomposed for specific determination.

southern portion of the State. I have not met with it personally. The published records are Laredo and Ringgold Barracks (specimens in the National Museum collection, listed by Cope), and Rio Grande City (Bailey).

34. *CROTAPHYTUS WISLIZENII* *Baird and Girard*. Leopard Lizard.

Trans-Pecos Texas, apparently not common. The Baylor Museum specimens were collected at El Paso, where it is said to be rather more abundant than in the country further east. Bailey records it from Boquillas, Brewster County, and Toyahvale, Reeves County, and Brown included it in his list of the reptiles of Pecos.

35. *HOLBROOKIA TEXANA* *Troschel*. Texas Zebra-tailed Lizard.

This handsome lizard has a very extensive range, being distributed over fully two-thirds of the counties of the State. It is very abundant in the trans-Pecos region, in the granite country, and in many of the counties of Middle-Southern Texas. It is also found in some of the east-central counties, but in these it is very locally distributed. In the Panhandle and southern plains district, it is confined to the rocky breaks and canyons. Tarrant, Bosque, McLennan and the line of counties extending southward seem to form the eastern boundary to its range.

36. *HOLBROOKIA MACULATA* *Girard*. Spotted Lizard.

This species inhabits the western half of the State, east to Wichita, Parker and Bexar counties, south to the Rio Grande. It is most abundant west of the foot of the plains and in the trans-Pecos region. Many of the records for this species have been hopelessly confused with those for the variety *lacerata* and the species *propinqua*. All of these have been reported from San Antonio, probably as the result of mistaken identifications.

37. *HOLBROOKIA MACULATA LACERATA* Cope. Boll's Spotted Lizard.

This sub-species, which is probably merely a color variety of the last, inhabits the middle district east of the plains and west of the timbered region, from the northern boundary south to the Rio Grande River. My records from near Waco and China Springs, McLennan County, carry its range, locally, into East-Central Texas. The following are published localities for this lizard: Cotulla, La Salle County (Bailey); Guadalupe River, Kendall County, and Comanche and Erath Counties (Cope); Japonica, Kerr County, 15 miles west (Bailey), and 25 miles southwest of Sherwood [probably Crockett County] (Bailey).

38. *HOLBROOKIA PROPINQUA* Baird and Girard. Long-tailed Spotted Lizard.

Lower Rio Grande Valley, north to San Antonio and Refugio, westward to the Pecos River and probably beyond. Mr. Mitchell sent me a pair of these lizards from Padre Island, together with the following notes: "These lizards come down to the Gulf beach from the sand-hills and forage among the drift and sea-weed. They make this trip after sun-down and return to the sand-hills at daylight."

39. *UTA STANSBURIANA* Baird and Girard. Brown-shouldered Lizard.

The trans-Pecos region, the panhandle district and probably the breaks and canyons in the southern plains district. Messrs. Townsend and Barber sent me a large series from El Paso with the statement that it was common in that vicinity. Bailey records it from Pecos City and Fort Stockton. A single example was collected near Elephant Mesa, Brewster County, by a Baylor University expedition. On my Northwestern Texas trip in 1910, I found it in abundance in Rush Creek Arroyo, Armstrong County, and this leads me to believe that it must inhabit all of

the arroyos and canyons west of the foot of the plains clear down to the Pecos River.

40. *UTA ORNATA* Baird and Girard. Ornate Lizard.

This handsome little lizard has an extensive range in Western Texas, but is another species that seems to have been overlooked by most collectors. The majority of the records are from localities in the trans-Pecos country. Cope first noted it as a Texas reptile in his essay "On the Zoological Position of Texas," but called it *Uta symmetrica* Baird. (Specimens from the tributaries of the Medina River.) According to Arthur Erwin Brown, it occurs as far north as Seymour, Baylor County, from which point specimens were received at the Philadelphia Zoological Gardens. It is by no means uncommon in Llano and Burnet Counties of the granite country. Bailey mentions it from Ingram, Kerr County, and Mr. Louis Garni has collected it near Boerne, Kendall County.

41. *SCELOPORUS COUCHI* Baird. Couch's Lizard.

This lizard must be very rare in Texas, for I have been able to find only two authentic records in the literature, and have never been so fortunate as to find a specimen on any of my collecting trips to the southern part of the State. Witmer Stone records a specimen from Devil's River, Val Verde County. Dr. Leonhard Stejneger states that the type specimen of *Lysoptychus lateralis* Cope, described in the Proceedings of the United States National Museum, 1888, page 397, is merely a specimen of this species. It is from San Diego, Duval County.

42. *SCELOPORUS ORNATUS* Baird. Decorated Lizard.

A Mexican species entering the Lower Rio Grande Valley of Texas. Recorded from Duval County by Dr. Boulenger (Proc. Zool. Soc., Lond., 1897, page 484). Cope, in the Report of the U. S. National Museum for 1898, page 345, lists a specimen collected by J. H. Clark at "Redmond's Pass." Clark collected

other material at *Redmond's Ranch*, which Dr. Stejneger states is the same as Bellville, about 70 miles below Laredo, and I suspect that the two are the same.

43. *SCELOPORUS TORQUATUS POINSETTII* *Baird and Girard*.
Poinsett's Lizard.

Trans-Pecos and Lower Rio Grande regions, in rocky localities. While the majority of the records for this species are south and west of the Pecos River, it has been collected as far east as San Diego, Duval County, and Cope states that he found it abundant in the first plateau region as far as the upper waters of the Guadalupe.

44. *SCELOPORUS SPINOSUS Wiegmann*. Tree Swift: Texas
Scaly Lizard.

Central and Southern Texas north to Dallas and Waco. Common in the Lower Rio Grande Valley, west to the mouth of the Pecos. Although arboreal in habits, it does not occur in the timbered region of extreme Eastern Texas. In the coast country, I have found this lizard as far east as Galveston. Cope lists a specimen from El Paso, but this was probably a dull-colored example of *Sceloporus clarkii*.

45. *SCELOPORUS SPINOSUS CLARKII*. *Baird and Girard*.
Clark's Scaly Lizard.

Trans-Pecos region, in the valley of the Rio Grande, from the mouth of the Pecos River northwest to El Paso. Bailey records specimens from Langry, Val Verde County, and Boquillas, Brewster County. I have numerous specimens from El Paso, in which locality it has been secured by a number of collectors. In coloration, it is one of the handsomest of Texas lizards.

46. *SCELOPORUS UNDULATUS Latreille*. Fence Lizard.

In Texas, the eastern fence lizard is confined to the timber belt. I have collected it in Henderson, Cherokee, Nacogdoches, Angelina, Liberty and San

Jacinto Counties. Mr. H. E. Fowler sent me several from Lindale, Smith County, and the National Museum has it from Anderson County.

47. *SCELOPORUS CONSOBRINUS* Baird and Girard. Marcy's Lizard.

With the exception of the eastern timber belt, this lizard is found all over Texas. Among extreme localities from which specimens have been reported are the following: Gainesville, Cooke County (National Museum collection); Bosque Hills, McLennan County (Strecker); Refugio, Refugio County (Strecker); Santa Rosa, Cameron County (Bailey); Paladuro Canyon, Armstrong County (Strecker); Yoakum County (Baylor University collection), and El Paso (Baylor collection). In many counties this species is distributed very locally. Specimens from Bexar and Comal Counties display very bright colors, while those found in the Panhandle and on the plains are dull colored. El Paso specimens usually have a gray-green ground color on the dorsal surfaces and the stripes are very distinct. In different localities, the light lines vary from pure white to buff, deep yellow and green.

48. *SCELOPORUS MERRIAMII* Stejneger. Merriam's Lizard.

This species is known from only a few localities in Western Texas, from the Pecos River Canyon, 55 miles northwest of Comstock, Val Verde County, south to the mouth of the Pecos River and west along the Rio Grande River to Boquillas, near the Big Bend.

49. *SCELOPORUS DISPAR* Baird and Girard.

Slender Scaly Lizard.

In "The Biological Survey of Texas," Bailey records five specimens collected by William Lloyd at Lomita Ranch, six miles north of Hidalgo, Hidalgo County. Cope placed *Sceloporus dispar* in the synonymy of Wiegmann's *Sceloporus microlepidotus*, but it is probably distinct.

50. SCELOPORUS VARIABILIS *Wiegmann*. Variable Lizard.

Southwestern Texas from Bandera, Bexar and Nueces Counties south to the Rio Grande. Mr. Mitchell collected several specimens in the neighborhood of Oakville, Live Oak County, and writes that it makes it home among *Opuntia* plants in that locality. Mr. Louis Garni sent me an interesting series from San Antonio. He states that it is rather common on the grounds of St. Louis College.

This lizard, the *Sceloporus marmoratus* and *Sceloporus delicatissimus* of Hallowell, names applied to specimens of the different sexes, is also the species misnamed *Sceloporus scalaris* Wiegmann by Cope, Yarrow and A. E. Brown. Cope afterward discovered his error and corrected it in the synonymy of *Sceloporus variabilis* on page 398 of "The Crocodilians, Lizards and Snakes of North America." Brown evidently overlooked this correction and five years later listed *Sceloporus scalaris* as a Texas reptile. The last named species inhabits Mexico and may possibly enter Texas in the trans-Pecos region. It has been collected in the State of Chihuahua, only about thirty miles south of El Paso.

51. PHRYNOSOMA DOUGLASSI HERNANDESI *Girard*.

Hernandez's Horned Lizard.

Bailey records a single specimen from the Guadalupe Mountains, El Paso County. This seems to be the first that has been collected in the State in many years. The National Museum has three specimens labeled Pecos River, Texas, Capt. John Pope.

52. PHRYNOSOMA DOUGLASSII ORNATISSIMUM *Girard*.

Painted Horned Lizard.

No. 205, United States National Museum collection, labeled "Pecos River and Rio Grande, Major Emory," is the only Texas record that I have been able to find for this variety.

53. *PHRYNOSOMA CORNUTUM* *Harlan*. Horned Toad.
Texas Horned Lizard.

Western, Central and Southern Texas. In the cretaceous region of the east-central portion of the State, it is found as far north as Dallas. Absent from most of the counties of the East Texas timber belt and the north-central section.

54. *PHRYNOSOMA MODESTUM* *Girard*. Little Horned Lizard.

The trans-Pecos region and the plains from Clarendon south to the Rio Grande River.

ANGUIDÆ

55. *OPHISAURUS VENTRALIS* *Linn*. Glass Snake.

Eastern Texas from the northern boundary south to the Rio Grande. Both eastern and western phases occur together in the same localities in the coast country. It is rare in the region about Waco, but more common to the eastward, in the timber belt. Kerrville is the most western record that I have been able to find for this species.

56. *GERRHONOTUS LIOCEPHALUS INFERNALIS* *Baird*.

Texas Gerrhonotus: Plated Lizard.

This rare lizard has been recorded from only a few scattered localities, mostly in the central-northern, central and western sections of the State. It inhabits rocky places and is our most pugnacious lizard. The following are the published localities: Devil's River, Helotes Creek and Wichita County (Cope), Chisos Mountains, Brewster County, at 6,000 feet (Bailey), Hays and Travis Counties and between Lewisville and Roanoke, Denton County (Cragin). My three specimens are each from a different locality, i. e., White Bluff, Burnet County, the hills west of Austin, and the foothills of the Chisos Mountains.

TEIIDÆ.

57. CNEMIDOPHORUS SEXLINEATUS *Linn.* Six-lined Lizard.

Eastern, Central and Northern Texas. Without an examination of the specimens, it would not be possible to tell whether some of the published records refer to this species or *Cnemidophorus gularis*. In many of the central counties, both species occur in the same localities, but occupy different habitats. Near Waco, *gularis* inhabits the fields and grassy flats while *sexlineatus* seems partial to wooded bottom lands. Brown records this lizard from Pecos but I have never seen examples from that far west. Cope's Galveston and Bailey's Padre Island records indicate that this species ranges through the coast country clear down to the mouth of the Rio Grande river.

58. CNEMIDOPHORUS GULARIS *Baird and Girard.*

Spotted Race Runner: Western Lined Lizard.

Central, Southern and Western Texas, its eastern range overlapping that of *Cnemidophorus sexlineatus*. It must also occur in the northern portion of the State as it is quite a common animal in Central Arkansas and Oklahoma. Specimens from Waco and other east-central counties are much larger than the majority of West Texas specimens. The smallest examples in my series are from the canyons of the southern counties of the Panhandle.

59. CNEMIDOPHORUS TESSELLATUS *Baird and Girard.* Tessellated Lizard.

Trans-Pecos Texas, southeast in the Rio Grande valley to Laredo and probably further. Bailey records specimens from the Castle Mountains in Crane county.

60. CNEMIDOPHORUS PERPLEXUS *Baird and Girard.* Seven lined Lizard.

This species inhabits the region south and west of the Pecos river, but apparently does not range east

of that stream. I collected it in several localities in Brewster and Jeff Davis Counties and consider it a much commoner animal than *tessellatus*, although the Biological Survey party obtained more specimens of that species.

61. *CNEMIDOPHORUS GRAHAMII* Baird and Girard. Graham's Tiger Lizard.

Western Texas from the Panhandle south through the plains to the Mexican boundary. Our limited knowledge of the range of this rare species, the handsomest of all Texas lizards, indicates that it is very local in its distribution. It was originally described in the early fifties from two specimens collected "between El Paso and San Antonio" by one of the Government expeditions. In 1880, Cope recorded two collected in Tule Canyon, Swisher County, in the southern Panhandle district. In 1903, Arthur Erwin Brown mentioned a specimen in his list of the reptiles of Pecos. In 1910, I found it not uncommon in the canyons and breaks in Armstrong County and collected a series of 23 specimens. Unlike the young of *tessellatus*, which are striped, the young of this species have the color pattern of the adult. In many of its habits, *grahamii* reminds one of an iguanian lizard.

SCINCIDÆ.

62. *LEIOLEPISMA LATERALE* Say. Ground Lizard.

Eastern and Central Texas, south almost to the mouth of the Rio Grande River. In the south-central section of the State is common in Kendall and Comal Counties and ranges westward well into the granite country.

63. *EUMECES QUINQUELINEATUS* Linn. Blue-tailed Lizard: Red-head "Scorpion."

Eastern Texas, principally in the timber belt, south to Victoria and Refugio Counties, west to Dal-

las and Waco. Very rare west of the Brazos valley in the east-central section. The largest male Red-heads that I have ever seen from any locality were sent me from Lindale by Mr. H. E. Fowler.

64. *EUMECES GUTTULATUS* *Hallowell*. White-spotted Skink.

Western Texas from the Panhandle south to the Mexican boundary. Most abundant in the mountainous region south of the Pecos River.

65. *EUMECES OBSOLETUS* *Baird* and *Girard*. Sonoran Skink.

This handsome skink ranges over fully two-thirds of the area of the State, but on account of its secretive habits is but little known in localities where it is common. It is a rather common animal in the canyons and breaks of the Panhandle, the southern plains and trans-Pecos counties. Eastward, it is found as far as McLennan County, and in the Rio Grande valley almost to the mouth of the river. Brown records a specimen from Seymour, Baylor County.

66. *EUMECES LEPTOGRAMMUS* *Baird*. Hayden's Skink.

Northern boundary between Texas and New Mexico, a single example collected by J. H. Clark. (National Museum collection.) This specimen was the type of Cope's *Eumeces epipleurotus*. The range of this species is usually given as "the Central Region—Nebraska to Northern Texas," but to judge from the above single record, it must be exceedingly rare in the southern portion of this territory.

67. *EUMECES MULTIVIRGATUS* *Hallowell*. Many-lined Skink.

The type of Baird's *Plestiodon inornatus*, which is said to be the same as the present species, was collected on the Rio Pecos by Captain John Pope. The locality is rather indefinite, but the species evidently does enter Texas in the region south of Clark's boundary, for I have a specimen from New Mexico only a short distance from the Texas line.

68. *EUMECES PACHYURUS* *Cope*. Blunt-tailed Skink.

Cope described this lizard from a single speci-

men obtained near Dallas, but afterward lost the type. Three specimens of a skink collected in the lowlands between the Brazos river and Tehuacana creek, from three to five miles east of Waco, fit Cope's description in every detail. The species is evidently rare and of rather peculiar habits. The under surface of the head, in one of my specimens, was bright orange red in color. When alarmed, this lizard retreats into burrows under the roots of small trees and prickly-pear plants.

69. *EUMECES TETRAGRAMMUS* *Baird*. Texas Skink.

Western Texas, east to Cooke and Denton Counties, southeast to Refugio and Cameron Counties. No records for the Panhandle or the plains. Apparently rare and of local distribution. In the majority of cases, only one or two specimens have been collected in the same locality. A black form occurs in the lower Rio Grande valley and in the granite country.

70. *EUMECES BREVILINEATUS* Cope. Short-lined Skink.

West-Central Texas, south to Bexar County and west into the trans-Pecos Counties. At the present time we have records from only a very few localities as follows: Burnet and Morgan Canyon, Burnet County (Strecker), Fort Concho, Tom Green County, (Cope), Helotes, Bexar County (Cope), Paisano, Brewster County (Bailey) and Boerne, Kendall County (Garni). The specimens from the last mentioned locality were identified by me. The short-lined skink is not uncommon in the granite country but it is a difficult matter to capture even a small per cent of the specimens one sees on account of its swift movements and wonderful ability to take advantage of every possible concealment.

71. *EUMECES ANTHRACINUS* *Baird*. Black Skink.

This handsome little species ranges from Pennsylvania southwestward into Northwestern Texas,

but has so far been recorded from only a very few localities in this vast region. In Southern Missouri and Arkansas it is found throughout the Ozarkian region, westward into the mountains of Oklahoma and the elevated portion of the plains in the Panhandle.

Specimens from the valley of the Brazos River in Northwestern Texas, collected by Dr. B. F. Shumard, are in the National collection.

OPHIDIA

GLAUCONIIDÆ

72.. GLAUCONIA DULCIS *Baird and Girard*. Worm Snake.

North-Central, Central and Southern Texas. At the present time we have no records for the eastern timber belt, the Panhandle or the southern plains, and only one for the trans-Pecos region (Brown's Pecos specimen). On account of its diminutive size and peculiar subterranean habits, this little snake is almost unknown in localities where it is by no means uncommon.

COLUBRIDÆ.

73. TROPIDONOTUS RHOMBIFER *Hallowell*. Diamond Water Snake.

This handsome water snake is found over the greater portion of the area of the State. So far as we now know, it does not inhabit the Panhandle or the plains, but occurs in the trans-Pecos region as is indicated by Brown's Pecos and my Brewster County specimens.

74. TROPIDONOTUS SIPEDON FASCIATUS *Linn.* Southern Water Snake.

Eastern Texas, west to Gainesville and Waco, south to Victoria and Matagorda Counties. In the several

localities in which I have studied the habits of this snake, I have always found it in lagoons and bayous with heavily wooded banks, never in open lakes or streams. This subspecies and *transversus* occur in the same localities, but never, so far as my experience goes, in the same habitats.

75. *TROPIDONOTUS SIPEDON TRANSVERSUS* *Hallowell*.

Hallowell's Water Snake.

This is the common water snake of Texas and is found in suitable localities throughout the State. Unlike *fasciatus*, this species is partial to open streams.

76. *REGINA CLARKII* *Baird and Girard*. Clark's Water Snake.

Coast region from Louisiana to the mouth of the Rio Grande river. Recorded from Dallas (Cope) and Pecos (Brown) but the majority of the published records are from the vicinity of salt water.

77. *REGINA GRAHAMII* *Baird and Girard*. Graham's Water Snake.

Eastern Texas, west to Waco and south to the neighborhood of San Antonio. Its distribution is very local. At Waco up to and including the year 1912, I had collected only one specimen. In the spring of 1913, I found it rather common at Cottonwood creek, only about three miles south of the city. Here I captured several and observed at least half a dozen more in the course of one morning.

78. *THAMNOPHIS PROXIMA* *Say*. Long's Garter Snake.

This garter snake is abundant in all Texas east of the plains and the Pecos river. Brown's Pecos record indicates that it enters the trans-Pecos region and Ruthven lists a specimen from Tule canyon. Swisher County, west of the foot of the plains, but it must be exceedingly rare in the extreme western part of the State.

79. THAMNOPHIS RADIX *Baird and Girard*. Racine Garter Snake.

A specimen from Dallas, mentioned by both Cope and Ruthven, is the only Texas record that I can find for this species.

80. THAMNOPHIS MARCIANA *Baird and Girard*. Marcy's Garter Snake.

Marcy's garter snake inhabits a broad strip of territory east of the plains and west of the timber belt, from Oklahoma south to the Mexican border. Extends west along the Rio Grande valley to El Paso, but apparently does not occur in the more southern trans-Pecos Counties. The eastern limit of its Texas range, so far as we now know, is indicated by specimens from Waco, Victoria and Brownsville. It is rare in the vicinity of Waco where I have collected only four specimens in more than twenty years. In Victoria and Refugio Counties, it is one of the commonest of all snakes.

81. THAMNOPHIS EQUES *Reuss*. Brown Garter Snake.

The range of this species is very imperfectly known. It inhabits all of the trans-Pecos counties and crosses the Edwards Plateau to San Antonio. Northward it ranges into the granite country (Llano and Burnet Counties). My Burnet County specimens are indistinguishable from several collected in Western Texas, but I am a little doubtful of my Waco specimens. Two of the latter were identified by Mr. Brimley as *cyrtopsis* (*eques*), but the several now on hand are faded out in spirits and can hardly be distinguished from some of the varieties of *sirtalis*.

82. THAMNOPHIS SIRTALIS SIRTALIS *Linn*. Common Garter Snake.

Eastern Texas, west to Dallas and Waco, south in the coast region to Victoria and Matagorda Counties. In this State we have two varieties which occur together in the same localities. One of these has both

stripes and spots, although the spots are usually indistinct, and is much the stouter animal of the two. This is probably the same variety as the specimen from Dallas referred to by Cope under the name of *E. sirtalis obscura* (bulletin U. S. National Museum, No. 17, 1880, page 23). The other is more slender, the red interspaces of the sides form bars as in *parietalis* Say and I have usually referred it to that sub-species. Since reading Dr. Ruthven's essay on the garter snakes, however, I have modified my opinions and now consider both to be merely forms of *sirtalis*.

83. *THAMNOPHIS SIRTALIS PARIETALIS* Say. Red-barred Garter Snake.

Recorded from El Paso by Cope and from Pecos by Brown. Probably occurs throughout the district south and west of the Pecos, but locality records are lacking. The specimen from White Eagle Copper Mine, referred to in my report on the reptiles of Burnet County (Baylor University Bulletin, Vol. 12, No. 1, page 8), may have been one of the other forms of the division of *Thamnophis* containing *eques*, *sirtalis* and *parietalis*.

It is quite likely, however, that *parietalis* does range into the granite country as *Uta ornata*, *Eumeces brevilineatus* and other West Texas reptiles are found there quite commonly.

84. *TROPIDOCLONIUM LINEATUM* Hallowell. Lined Snake.

Eastern Texas, west to Cooke, Dallas and McLennan Counties, south to Walker, Harris and Liberty Counties. Very abundant within the city limits of Dallas, Houston and Waco in waste lands and under storerooms and warehouses.

85. *AMPHIARDIS INORNATUS* Garman. Garman's Snake.

The type specimens, two in number, were collected at Dallas and are now in the Museum of Comparative Zoology at Cambridge. The species must be very rare as no other examples have been collected since it was described in 1883.

86. HALDEA STRIATULA *Linn.* Brown Snake.

Eastern Texas, west to Cooke, Somervell and McLennan Counties. South as far as Victoria County, Abundant wherever found.

87. STORERIA DEKAYI *Holbrook.* De Kay's Snake.

Eastern half of the State, from the northern boundary south to the Rio Grande river. Usually abundant.

88. STORERIA OCCIPITOMACULATA *Storer.* Red-bellied Snake.

Three specimens labeled Red River, Texas, collected by Robert Kennicott, are in the National Museum. I have not met with it personally, nor have I been able to find other records than the above. If it be true, as Cope states, that it occurs as far south as Vera Cruz, Mexico, it should certainly be found throughout the entire eastern section of the State of Texas.

89. DRYMARCHON CORAIS COUPERI *Holbrook.* Couper's Gopher Snake: Indigo Snake.

Lower Rio Grande valley from Brownsville to Eagle Pass, north to La Salle, Live Oak and San Patricio Counties.

90. DRYMARCHON CORAIS MELANURUS *Schlegel.* Mexican Gopher Snake.

Bailey records a single example from Brownsville.

91. DRYMOBIUS MARGARITIFERUS *Schlegel.* Schlegel's Snake.

This species has been collected at Brownsville and Rancho St. Thomas, Cameron County. It is a tropical snake and not likely to be found much further north.

92. CALLOPELTIS OBSOLETUS OBSOLETUS *Say.* Pilot Blacksnake.

Bailey records specimens of typical *obsoletus* from Sour Lake and the mouth of the Nueces river. Personally I have never met with this sub-species in

Texas. It is probably confined to the eastern timber belt and the coast prairie country. In Liberty and San Jacinto Counties, I frequently heard of a timber blacksnake that must have been this reptile, but as no specimens were secured, cannot be positive.

93. *CALLOPELTIS OBSOLETUS LINDHEIMERI* Baird and Girard. Lindheimer's Pilot Snake.

This subspecies inhabits the greater portion of Texas east of the plains, but is most abundant in the region from Comal and Bexar Counties east to Matagorda County and southward in the coast prairie to the mouth of the Rio Grande river. My northernmost locality is McKinney, from which place I received two adult specimens from Mr. Eustis King.

94. *CALLOPELTIS OBSOLETUS CONFINIS* Baird and Girard. Gray Pilot Snake.

Cope considered the *Coluber confinis* of Baird and Girard to be an entirely different species from the *Coluber spiloides* of Dumeril and Bibron and I have always mentioned the present species under the latter name. The gray pilot snake retains its juvenile color pattern through life. The head markings in the young are very variable, but usually present to those willing to draw on their imaginations the outlines of a human head. In one example it is an old man with gray beard, in another a woman's head with abundant tresses, and so on. Two were exhibited at a local exposition with a "For Sale" sign attached. Price \$100.00 for the pair! And these were no better specimens from the standpoint of markings than a dozen or more in my own collection. It is needless to say that the owner failed to find a purchaser.

Confinis ranges from Dallas south to the Brownsville country. Mr. Hurter obtained two magnificent specimens at San Antonio and Mr. Mitchell has collected several at Victoria. Both the present sub-species and *lindheimeri* have been collected in

the same locality, but whether their habitats differ or not, I am unable to say. *Confinis* is common in McLennan County, where it inhabits the river bottoms. Two specimens of *lindheimeri* were collected in the hilly country, eighteen miles northwest of Waco, in the same county. Mr. Mitchell reports both subspecies from Victoria.

95. CALLOPELTIS EMORYI *Baird and Girard*. Emory's Pilot Snake.

Western half of the State, east to Dallas, Waco, Victoria and Brownsville. This species climbs trees but is less active than the different forms of *Callopeltis obsoletus*. It is the only species of pilot snake that is found in the breaks and canyons of the plains region.

96. CALLOPELTIS BAIRDI *Yarrow*. Baird's Pilot Snake.

The type and only specimen of this species is in the National Museum collection. It was collected at Fort Davis, Jeff Davis County.

97. CALLOPELTIS SUBOCULARIS *A. E. Brown*.
Davis Mountain Pilot Snake.

This snake is known only from the Davis Mountain district of trans-Pecos Texas. The type was from the head of Toyah creek, Jeff Davis County. A number of living specimens were received at the Philadelphia Zoological Garden and it is probably one of the most distinct species in the genus.

98. ARIZONA ELEGANS *Kennicott*. Kennicott's Snake.

Known in Texas from only a few widely separated localities. Arthur Erwin Brown records it from Pecos and Seymour. Julius Hurter obtained two fine examples near San Antonio. Dr. Boulenger in his Catalogue of the Snakes in the British Museum, records two from Duval County, under the name of *Coluber arizonae*.

99. PITYOPHIS CATENIFER SAYI *Schlegel*. Bull Snake.

Western half of the State, east, locally, to Wichita, McLennan, Victoria and Cameron Counties. In Central Texas it is by no means a common snake, but some of the largest specimens that I have ever seen came from this section.

100. ZAMENIS CONSTRICTOR CONSTRICTOR *Linn.* Black Snake.

Probably the true *Zamenis constrictor* does not enter Texas, but the black racer of the northeastern section of the State is very near to the typical subspecies and differs greatly from *flaviventris*. The racer snakes of Texas are a curious lot, presenting the characters and every type of coloration known to the several races inhabiting North America. The black form is principally confined to the northern and northeastern sections, but an occasional specimen is found as far south as Bosque and McLennan Counties.

101. ZAMENIS CONSTRICTOR FLAVIVENTRIS *Say*. Yellow-bellied Racer.

This racer probably inhabits the greater portion of Texas, but has been recorded from only a few scattered localities. The type of Cope's *Zamenis stejnegerarius* was from Cameron County. Garman mentions a specimen from Deming's Bridge, Matagorda County, and I have seen one from Burnet County. In the prairie district of McLennan County this snake is by no means uncommon and I have had several from the Brazos bottomlands from Waco south to Bryan. McLennan County specimens are very variable in the color of the upper surfaces, but the underparts are usually yellow. One young example was blotched with bright red.

102. ZAMENIS FLAGELLUM *Shaw*. Coachwhip Snake.

The "prairie runner" is a common snake over the greater portion of the area of the State. It ap-

parently does not enter the northern section of the timber belt, but has been recorded from almost every other section. Specimens from the Central Texas counties are rather dark in coloration, while those from the dry regions of the west and southwest are very pale. Several from El Paso County combine the characters of the two western subspecies, *frenatum* and *piceus*, having narrow crossbands in front and the underparts bright pink in color.

103. *ZAMENIS TAENIATUS TAENIATUS* *Hallowell*. Western Coachwhip Snake.

Cope records this beautiful snake from two localities in the Rio Grande valley—Laredo and Eagle Pass. The Eagle Pass specimen is the type of *Masticophis schottii* Baird and Girard. Some years ago I collected two fine adult specimens in Burnet County, but it is extremely rare that far north.

104. *ZAMENIS TAENIATUS ORNATUS* *Baird and Girard*. Texas Coachwhip Snake.

Known only from a few localities in Western Texas. Bailey records specimens from near Comstock and the head of Devil's river, and Brown lists it from Pecos. The National Museum contains the types from "between Indianola and El Paso," received from Colonel Graham, and one from "Howard Springs," collected by Major Emory.

105. *SALVADORA GRAHAMIAE* *Baird and Girard*. Graham's Snake.

Southern and Western Texas. Not uncommon as far up the coast as Matagorda County and in the south-central section in Kerr, Kendall, Comal and Bexar Counties. Extends locally as far north as McLennan County.

106. *CYCLOPHIS AESTIVUS* *Linn*. Southern Green Snake.

A rather common species as far west as the foot of the plains and south to the Mexican boundary. In

the Panhandle district, a few are found in the wooded canyons.

107. *LIOPELTIS VERNALIS* Harlan. Northern Green Snake.

The smooth-scaled green snake has been reported from only two widely separated localities, i. e., Washburn, Armstrong County (Bailey), and Deming's Bridge, Matagorda County (Garman).

108. *CONTIA EPISCOPA* Kennicott. Miter Snake.

The published records indicate that this snake has an extensive range. It is principally distributed over the western and southern sections of the State but has been reported from as far east as Fort Worth.

109. *CONTIA EPISCOPA ISOZONA* Cope. Banded Miter Snake.

This variety of *episcopa* is known from only a few localities. Bailey reports one from the Chisos Mountains, Brewster County, at 6,000 feet. Cope's records are Tule Canyon, Swisher County, and Gainesville, Cooke County. I have collected it in the neighborhood of Claude, Armstrong County.

110. *CONTIA TAYLORII* Boulenger. Taylor's Snake.

Only three specimens of this snake are known. Two are from the type locality, San Diego, Duval County, and are now in the British Museum. The third specimen was obtained in Northern Mexico.

111. *DIADOPHIS REGALIS* Baird and Girard. Regal Ring-necked Snake.

Recorded from the Chisos Mountains at 5,000 feet (Bailey), Eagle Springs, El Paso County, and Fort Davis (Cope) and Waco (Strecker). The Waco specimen was an example of the color variety *arnyi* Kennicott and indistinguishable from specimens from Missouri and Central Arkansas. It probably ranges over the greater part of Texas, but like many small species has been overlooked by collectors.

112. *DIADOPHIS AMABILIS* *Baird and Girard*. Western Ring-necked Snake.

Coast region south to the mouth of the Rio Grande River, north to Bexar and Comal Counties, westward through the trans-Pecos counties. No. 1897 of the National Museum collection from "New Orleans to Galveston," is the type of Kennicott's *Diadophis texensis*.

113. *OPHIBOLUS DOLIATUS DOLIATUS* *Linn.* Scarlet King Snake.

Eastern Texas, south to Victoria, west to Waco; rare.

114. *OPHIBOLUS DOLIATUS COCCINEUS* *Schlegel*. Red King Snake.

Recorded from Galveston by Cope. Mr. Julius Hurter writes me that he captured a specimen at Paris, Lamar County, and it is now in his private collection.

115. *OPHIBOLUS DOLIATUS GENTILIS* *Baird and Girard*. Ringed King Snake.

Rio Grande valley, north and east to San Angelo, San Antonio and Victoria. This is the *Lampropeltis annulata* of Kennicott.

116. *OPHIBOLUS CALLIGASTER* *Harlan*. Evan's King Snake.

In Texas, this beautiful king snake has been reported from only a few scattered localities. Cope mentions examples from Gainesville, near the north-eastern boundary, and Fort Davis, in the trans-Pecos region. Garman records one from Deming's Bridge, Matagorda County, under the name of *Ophibolus rhombomaculatus* Holbrook. It is found in the neighborhood of Waco, but is extremely rare.

117. *OPHIBOLUS GETULUS HOLBROOKII* *Stejneger*. Speckled King Snake.

I adopt the name proposed by Dr. Stejneger for the *Ophibolus getulus sayii* of most authors, for I be-

lieve that he has stated the true status of the case, i. e., that the *Coronella sayi* Schlegel is the snake that we know as *Pityophis catenifer sayi* Schlegel. The speckled king snake inhabits the greater portion of the area of Texas, but some of the published locality records doubtless refer to *Ophibolus splendidus* Cope, and on this account it would be a difficult matter at this time to define the limits of its Texan range. It occurs throughout the entire eastern section and as far west as the foot of the plains. Southward, it is found in Burnet, Bexar and Refugio Counties. Most of these southern specimens have many of the color characters of *splendidus* and I suspect that Brown's Pecos specimens belong to that species.

118. OPHIBOLUS SPLENDIDUS *Cope*. Splendid King Snake.

Cope and Stejneger record specimens in the National collection from Pecos River and San Diego. Dr. Stejneger says that this form seems to skirt the Mexican border pretty closely. The majority of the specimens in collections are from Southern Arizona and New Mexico.

119. OPHIBOLUS ALTERNUS *A. E. Brown*. Davis Mountain King Snake.

Known only from the type specimen collected in the Davis Mountains, Jeff Davis County.

120. FARANCIA ABACURA *Holbrook*. Horn Snake.

Mr. J. D. Mitchell collected a specimen of this snake at Victoria in 1909. It had not previously been reported from the State. It probably occurs in all the swamp and bayou counties of the eastern and southeastern sections.

121. VIRGINIA ELEGANS *Kennicott*. Virginia's Snake.

Eastern and Central Texas. Reported by Cope from Dallas, Helotes, Kerrville and Liberty Hill, Williamson County. I have it from Lindale, Smith

County, and White Eagle Copper Mine, Burnet County.

122. *FICIMIA CANA* Cope. Dog-nosed Snake.

A specimen from Duval County, Texas, is recorded by Boulenger in his Catalogue of the Snakes in the British Museum.

123. *RHINOCHILUS LECONTEI* Baird and Girard. Le Conte's Snake.

Southern and Western Texas, north and east, locally, to Eastland and McLennan Counties. Specimens have been recorded from the following localities: Waco (nine miles north), Midland, Midland County, and Clear Creek, Burnet County (Strecker); San Diego, Helotes, San Angelo, Fort Chadbourne, Menard County, and Desdemonia, Eastland County (Cope), Pecos (Brown), and Rock Springs, Edwards County (Bailey). A living specimen in the Texas Cotton Palace zoo was captured at Hewitt, McLennan County.

124. *HYP SIGLENA TEXANA* Stejneger. Texan Rock Snake.

Known from only a few localities in the southern and western sections. Brown mentions one from Seymour, Baylor County. Specimens from San Diego and Laredo are in the National collection. The type was collected by Arthur Schott between Laredo and Camargo, Texas. Cope does not mention this species in his "Crocodylians, Lizards and Snakes of North America," although it was published in 1893, some time before his death. The Texas specimens in the National Museum were listed under the name of *H. ochrorhyncha* Cope, and *texana* is not mentioned even as a synonym. Dr. Brown refused to recognize *texana* as being distinct from *ochrorhyncha*, claiming that the type must have been an abnormal specimen and the characters assigned by its author of no value. However, as Dr. Stejneger distinctly says that the other specimens from Texas examined by him agree

in every respect with the type, I shall here recognize it as a distinct species.

125. *HETERODON PLATYRHINUS Latreille*. Spreading Adder:
Hog-nosed Snake.

The "blowing adder" is distributed over the entire eastern and middle sections west to the foot of the plains and south almost to the Rio Grande River. This species follows the canyons in the Panhandle and by this means penetrates the plains region for a short distance.

126. *HETERODON NASCIUS Baird and Girard*. Western Spreading Adder.

Western Texas, extending eastward in the Rio Grande Valley as far as Cameron County. Common in the trans-Pecos counties and in the Panhandle west of the foot of the plains. In the Rio Grande Valley this species seems to be found only in the border counties and does not range northward into the interior for any distance.

127. *SIBON SEPTENTRIONALIS Kennicott*. Ringed Snake.

This and the following species are tropical snakes which extend their range into North America only in the extreme southern portion of Cameron County, Texas. *Sibon septentrionalis* has been captured at Brownsville on several occasions.

128. *ERYTHROLAMPUS IMPERIALIS Baird*. Imperial Snake.
Brownsville, Texas.

129. *TANTILLA NIGRICEPS Kennicott*. Black-headed Tantilla.

Western and Southern Texas. Recorded from San Antonio and San Diego by Cope and from Pecos by Brown. Cope says that it is common between the upper waters of the Brazos and Colorado Rivers. I did not find it in any of the localities visited by me.

130. *TANTILLA GRACILIS Baird and Girard*. Graceful Tantilla.

Texas, west to the foot of the plains, south to the

Mexican boundary. Cope's type of *Tantilla hallowelli* came from Eagle Pass. Specimens from Burnet County, while possessing only six upper labials, have the top of the head almost as dark as in *T. nigriceps*.

131. ELAPS FULVIUS *Linn.* Harlequin, Bead or Coral Snake.

Eastern Texas from the northern boundary south to the Rio Grande, west almost to the foot of the plains.

VIPERIDÆ.

132. AGKISTRODON PISCIVOROUS *Lacepede.* Cottonmouth:
Stumptail Water Moccasin.

Eastern and Southern Texas, abundant in the timber belt and the coast and Fayette prairies. In the Rio Grande country extends west to the mouth of the Pecos River. In the east central section occurs at Dallas, Waco and Burnet. The types of *Toxicophis pugnax* Baird and Girard were from Indianola.

133. AGKISTRODON CONTORTIX *Linn.* Copperhead: High-
land Moccasin.

The copperhead is found throughout the eastern and east central sections of the State, south to San Antonio, Refugio and Victoria. The most western locality from which I have a specimen is Burnet, but Mr. Garni has collected it near Boerne, Kendall County, and Dr. Brown records it from Pecos.

134. SISTRURUS MILIARIUS *Linn.* Pygmy Rattlesnake:
Ground Rattlesnake.

This tiny rattlesnake is rather scarce in Texas, but is found in most of the eastern and east-central counties. In the coast prairie district it is found as far south as Victoria and Matagorda counties. In McLennan County I have collected only one specimen in the past twenty years.

135. *SISTRURUS CATENATUS CONSORS* *Baird and Girard.*

Massasauga: Large Ground Rattlesnake.

Western Texas, principally in the Panhandle and on the southern plains, southeastward over the Edwards Plateau through the Lower Rio Grande country to the coast. In the coast country ranges north to Victoria and Matagorda counties. The type specimen of *consors* was collected at Indianola, Matagorda County, while the types of *edwardsii* Baird and Girard (now considered the same thing) were from Sonora, Sutton County. This species was formerly abundant in the Panhandle district, but farmers report that it is getting scarcer every year. Mr. Lutrell of Claude, Armstrong County, informs me that he has often killed from fifty to sixty during one wheat season, but that during the past four or five years he has not seen more than half a dozen in any one year.

136. *CROTALUS MOLOSSUS* *Baird and Girard.* Dog-faced Rattlesnake.

In Texas, this species is known only from Pecos and El Paso Counties. The type specimen of Hallowell's *Crotalus ornatus*, collected by Dr. Heermann at the Pecos river, en route between El Paso and San Antonio, was until quite recent years the only Texas specimen of which we had any record. In 1901 the United States Biological Survey party collected a number of specimens of the dog-faced rattlesnake, and in his report on the results of the survey, Mr. Vernon Bailey writes the following: "This is the common rattlesnake of the Guadalupe Mountains in Upper Sonoran zone on both sides of the Texas and New Mexico line. Specimens were collected near the edge of the Transition zone on the east and west slopes of the mountains at 6,500 and 6,800 feet, but I assume that this species belongs to Upper Sonoran. A flat skin collected by Cary at a point 25 miles west of Sheffield is apparently this species. We found this snake in August, 1901, in the gulches high up on the

range. It is pugnacious, quick to sound its rattle and throw itself on the defensive. Because of its prevailing color of olive green, we always referred to it as the 'green rattlesnake.' "

137. *CROTALUS ATROX* *Baird and Girard*. Texas Rattlesnake:
Western Diamond Rattlesnake.

Middle and Southern Texas, from the southeastern corner of the Panhandle south to the Mexican boundary, east in the Rio Grande Country to the coast. A line from the eastern boundary of Wichita County drawn through Waco straight down to the mouth of the Colorado River will roughly indicate the eastern limits of its range. West it extends almost to the foot of the plains and ranges along both sides of the Pecos and Rio Grande Rivers into the southern plains, the trans-Pecos counties and Mexico. It apparently does not inhabit the higher elevations in the trans-Pecos district. The peculiar form known as *Crotalus scutulatus* Kennicott is recorded from Duval County by Boulenger and from Pecos by Brown, and I have it from the western part of El Paso County.

138. *CROTALUS CONFLUENTUS* *Say*. Plains Rattlesnake.

This rattlesnake inhabits the plains of Western Texas. Cope records it from the head of Red River, Canyon Blanco and Haskell County, Bailey mentions it from Amarillo, and I have collected it near Midland. Boulenger records a specimen in the British Museum from Duval County. Many of the locality labels on early National Museum specimens are rather indefinite, but the collection contains specimens from San Antonio, Pecos River, and the Rio San Pedro (Devil's River).

139. *CROTALUS HORRIDUS* *Linn*. Banded Rattlesnake.

This is the "timber rattlesnake" of Eastern Texas and is widely distributed. Vernon Bailey's map in the Report on the Biological Survey of Texas, showing the distribution of this species, would have been

much more accurate had he left all of the region east of the range of *Crotalus atrox* unshaded and marked it "distribution of *Crotalus horridus*." Mr. Mitchell mentions this species from Victoria and Winchester, Fayette County, the former locality well within the range of *atrox*. I have either collected or examined specimens of *horridus* in McLennan, Coryell, Bosque and Williamson counties, in all of which *atrox* is also found, the former inhabiting the timber lands, the latter the rocky districts and flats.

140. *CROTALUS LEPIDUS* Kennicott. Kennicott's Rattlesnake.

Rio Grande Valley from Eagle Pass west almost to El Paso. In the trans-Pecos district is not uncommon in the Chisos, Davis and other mountain ranges of Brewster, Pecos and Jeff Davis Counties. In color, this rattlesnake is very variable, some authorities referring to it as the "green rattlesnake," while Bailey calls it the "white rattlesnake." Some years ago, I received from the San Blas Mountains, Chihuahua, Mexico, a fresh specimen of this species, which was bright salmon colored.

AMPHIBIA

SALIENTIA

RANIDÆ

141. *RANA PIPIENS* Schreber. Leopard Frog.

The leopard frog, or, as it is called in many Texas localities, the "spotted bull frog," is distributed all over the State wherever there are watercourses. Specimens from the western part of the trans-Pecos region—Sierra Blanca and El Paso—are very close to the Mexican variety called *Rana pipiens austriicola* by Cope. Specimens from Southern Texas—Brownsville and San Antonio—were named *Rana berlandieri* by Baird and were afterward referred to as *Rana virescens (pipiens) brachycephala* by Cope. The latter is a western subspecies which I consider of

very doubtful value. *Rana pipiens* is a very variable frog and I have found it in its various phases in every locality visited by me.

142. *RANA SPHENOCEPHALA Cope*. Southern Leopard Frog.

Miss Dickerson records this beautiful spotted frog from Hitchcock. I have collected it at Refugio, Burnet, Glen Rose, Dripping Springs, five miles northeast of Waco, and a point eight miles south of Waco, on the left bank of the Brazos. With the exception of the Refugio specimens, all of the specimens of this frog collected by me were found in the vicinity of springs. They seem very fond of lurking behind clusters of ferns on moist banks, and do not seem to venture any great distance from water.

143. *RANA AREOLATA Baird and Girard*. Texas Gopher Frog.

Originally described from Indianola, Matagorda County, by Baird and Girard, and afterward recorded from Hitchcock by Miss Dickerson. This is a species of peculiar habits and likely to be overlooked even in localities where it is not uncommon. In Missouri, Mr. Hurter found this frog inhabiting the deserted chimneys of crayfish.

144. *RANA CATESBEIANA Shaw*. Bull Frog.

Eastern Texas, south to Victoria and Refugio. I have found it as far west as Coryell and Burnet Counties, and Mr. Garni has collected it in Kendall and Bexar Counties. The specimen of *Rana clamitans* Daudin, recorded from Texarkana in a footnote in the Hurter-Strecker list of Arkansas reptiles and amphibians (Trans. St. Louis Acad. Science, 1909, Vol. 18, No. 2) proves to be not that species, but a young example of *catesbeiana*.

ENGYSTOMATIDÆ

145. *GASTROPHRYNE CAROLINENSE Holbrook*.

Narrow-mouthed Toad.

Eastern Texas south to Victoria. Many of the

published records for this species probably refer to *G. texense* Girard, a smaller, slenderer, paler, and more uniformly colored animal with unspotted underparts. I have collected typical *carolinense* at Cleveland, Liberty county, and have examined specimens collected at Paris, by Hurter, and Victoria, by Mitchell. Miss Dickerson reports it from Hitchcock. Mr. Mitchell obtained only one specimen at Victoria, a locality inhabited by both *G. texense* and *G. areolata*.

146. GASTROPHRYNE TEXENSE *Girard*. Texas Narrow-mouthed Toad.

East-Central, Central and Southern Texas. Originally described from Rio Seco by Girard, this species was not recognized by herpetologists until re-described from Brownsville and San Diego by Miss Dickerson, nearly sixty years later. I have collected specimens at Calvert, Waco, Laguna, Houston, Austin, Texas City and Refugio, and have received it from Victoria from Mr. Mitchell and from San Antonio from Mr. Garni.

147. GASTROPHRYNE AREOLATA *Strecker*. Mitchell's Narrow-mouthed Toad.

Southeastern Texas. Known only from Victoria and Calhoun counties.

148. HYPOPACHUS CUNEUS *Cope*. Taylor's Toad.

Extreme Southern Texas from San Diego to Brownsville.

CYSTIGNATHIDÆ

149. LITHODYTES LATRANS *Cope*. Robber Frog: Barking Frog.

Central and Southwestern Texas. Recorded only from Helotes and Waco. This and the following species inhabit rocky places and go into the water only to breed.

150. *SYRRHOPUS MARNOCHII* Cope. Marnock's Frog.

Known only from the type locality, Helotes, Bexar County, Texas.

HYLIDÆ

151. *CHOROPHILUS ORNATUS* Holbrook. Ornate Chorus Frog.

This handsome little frog is by no means common in collections. It is recorded from Helotes and Dallas by Cope. Mr. Garni sent me several from Boerne, Kendall County, and I have collected three specimens in the vicinity of Waco. The following notes by Mr. Garni will be of interest: "I caught several in a temporary pool along the railroad tracks. These little fellows are pretty hard to get, for, on the least noise, they stop their chorus, and on coming to the pool there is no trace of them. I noticed that by approaching cautiously and then rushing to the water, on the side they happen to be, enables one to discover them. Being so suddenly surprised, they can be seen swimming to the bottom for a hiding-place. Judging by the loud chorus these frogs made at night, they must be pretty numerous here. They were heard throughout the winter, especially after rains."

152. *CHOROPHILUS OCCIDENTALIS* Baird and Girard. Western Chorus Frog.

Cope reports this species from Dallas and the Upper Wichita River. I have no specimens from Texas.

153. *CHOROPHILUS TRISERIATUS* Wied. Striped Tree Frog.

This little frog is distributed over the greater portion of Texas. Extreme localities from which specimens are reported are Clarendon, Fort Concho, Helotes and Refugio. Baird's types of *Holocoetes clarkii* were from Indianola. In East-Central Texas, during the breeding season, this species fairly swarms in the roadside ditches and in shallow pools on the grassy flats.

154. *ACRIS GRYLLUS CREPITANS* *Baird*. Western Cricket Frog.

This tiny frog is distributed all over the State wherever there are lakes, ponds, springs or streams. I have found it even in the heart of well populated cities in little pools formed by rains. While allied to the true tree frogs, this species never climbs trees, but lives among water plants and in the vegetation along shore. When alarmed it retreats to the water after the manner of a true water frog.

155. *HYLA SQUIRELLA* *Bosc*. Southern Tree Frog.

Reported from Hitchcock by Miss Dickerson. I have specimens from Cleveland, Houston, Victoria and San Antonio. Principally confined to the East Texas timber belt.

156. *HYLA CINEREA* *Daudin*. Green Tree Frog.

Eastern and Central Texas, south to San Antonio and Refugio. Hallowell's types of *Hyla semifasciata* were from Indianola. This beautiful tree frog, sometimes called the "bell frog" on account of its bell-like notes, is said to be common among lily pads in the swamps and lagoons. The most of my specimens were captured while hanging from the ends of small branches in the vicinity of springs. In the fall, after the first few cold days, I have often found specimens under logs lying along the borders of lagoons, in localities much frequented by terrestrial salamanders.

157. *HYLA VERSICOLOR* *Le Conte*. Chameleon Tree Frog.

I have examined typical specimens of *Hyla versicolor* from a number of localities in the East Texas timber belt and the coast prairie country. All of these have the dorsal integument covered with small tubercles. Cope records this tree frog from Gainesville and New Braunfels. Mr. Brimley has received it from San Antonio and Mr. Mitchell has sent it to me from Victoria. My localities are Cleveland, Tyler, Nacogdoches, Athens and Refugio.

158. *HYLA VERSICOLOR CHRYSOSCELIS* Cope. Cope's Chameleon Tree Frog.

Cope described this smooth-skinned tree frog as a variety of *Hyla femoralis* Latr., the type coming from Dallas. Dr. Stejneger later referred to it as a variety of *versicolor*. Waco specimens fit Cope's description of his subspecies in every detail, and if the specimens are really the same, I cannot understand how he could confuse it with *femoralis*, which is a much smaller animal, lacks the white spot under the eye, has the upper lip unicolor and has three phalanges of the fourth toe free. *Hyla femoralis* may inhabit the pine belt of East Texas, but I have never been able to procure any specimens from there. *Hyla chrysoscelis* is rather common in East-Central Texas, but it would be impossible at the present time to attempt to outline its State range. It also occurs in Arkansas.

159. *HYLA ARENICOLOR* Cope. Arizona Tree Frog.

Recorded from Del Rio by Witmer Stone. Cope states that the *Hyla copii* described by Boulenger from El Paso is the same species. I have frequently heard the voice of a *Hyla*, which I am satisfied must have belonged to this species, in the canyons of West Texas, both in the Panhandle and trans-Pecos regions.

160. *SMILISCA BAUDINII* Dumeril and Bibron. Mexican Tree Frog.

Southern Texas, north to Refugio and Bexar Counties. The type of Baird's *Hyla vanvlietii* was collected at Brownsville. Specimens from the northern part of its range are of two types, one with the prominent black patch of color over the arm insertion, the other lacking it. In both types, the dorsal coloration is the same.

BUFONIDÆ

161. *BUFO PUNCTATUS* Baird and Girard. Spotted Toad.

Western half of Texas, east, locally, to Dallas,

Waco and San Antonio. I can find no records for the Panhandle, although it may range northward into that section. This toad is an inhabitant of damp, rocky gulches. At Glen Rose, in April, I found many specimens under large flat stones which were lying in the bed of a small, rock-bound creek. In a small gully several miles north of Waco, I captured fifteen specimens one rainy night between 8 and 10 o'clock. They were preparing to enter the water to breed, and the most of them were found in pairs. The few single individuals were males. These were hopping along the edges of the small pools, occasionally stopping and giving vent to loud cries. They breed in the pools of water which form in large pockets in the rocks, and the development of the tadpole is very rapid.

162. *BUFO DEBILIS Girard*. Little Green Toad.

This little toad has a rather peculiar distribution. It is said by Cope to be abundant in the Panhandle district, but I can find no records for the southern plains or trans-Pecos counties. In Middle Texas it ranges east to Waco, but does not appear to extend much further north. It is found all over Southern Texas from Brownsville west to the mouth of the Pecos River and north abundantly to Refugio, Bee, Bexar and Comal Counties. It is also common in the granite country. In the vicinity of Waco, this is a species of the open, grassy flats. It breeds abundantly in April and May in rain-formed pools and ditches.

163. *BUFO COMPACTILIS Wiegmann*. Spadefoot Toad.

This species is found all over Southern Texas, ranging west to the Pecos River. I have found it near Burnet and it is abundant at Waco. As it has been recorded from Kansas, in all probability it ranges through the entire middle district of Texas west of the timber belt and east of the plains. Cope records it from the Wichita River, but I did not find

it in the Panhandle. On account of its peculiar habits, it is a toad that is little known in localities where it occurs in abundance. It is partial to damp weather and on rainy nights fairly swarms around electric lights in the towns and cities. During the breeding season, the male has a loud ringing cry, **very different** from that of other toads of this genus. This species breeds in temporary pools, and, as in the case of *Bufo punctatus*, the tadpole goes through all its stages in a very short period of time.

164. *BUFO COGNATUS* Say. Say's Toad: Plains Toad.

Staked Plains region, from the northern boundary of the Panhandle south to the Pecos River. Also occurs in the western portion of the trans-Pecos region. My specimens are from El Paso; Hale Center, Hale County; Stratford, Sherman County; Post City, Garza County, and Claude and Goodnight, Armstrong County. In Cope's report on the reptiles and amphibians of Northwestern Texas, it is stated that this toad is common around the head of the Brazos River, but not common south of Tule Canyon. In the town of Goodnight, during a shower, I caught many of these toads early in the afternoon. The following night we captured nearly twenty-five specimens and could have collected a hundred more.

165. *BUFO VALLICEPS* Wiegmann. Nebulous Toad.

Eastern section of the State, west to the western border of the grand prairie and granite country, south to the Rio Grande River. Usually abundant wherever found. The natural habitat of this species, in Central Texas, is along the borders of creeks with rocky banks. Here they inhabit fissures and caves among the rocks. Occasional specimens are found around electric street lamps in towns, but only after they have been driven from their normal haunts by heavy rains. In the region northeast of Houston, I have captured specimens along the edges of pine forests.

166. *BUFO LENTIGINOSUS AMERICANUS* *Le Conte*. American Toad.

Eastern Texas, limits of range not known at the present time. In the middle section grades into the larger, darker and shorter-headed *woodhousii*. I have captured typical examples of *americanus* at Austin, Burnet, Dallas, Fort Worth, Glen Rose, Morgan, Mineola, Tyler, Refugio, Taylor, Palacios, Gatesville, San Antonio, Houston, Cleveland, Marlin, Calvert, Bryan and Waco. Mr. Mitchell records it from Victoria. Miss Dickerson's specimen of *woodhousii* illustrated in the "Frog Book," is either an unusually large, dark specimen of *americanus* or an intermediate form between the two.

167. *BUFO LENTIGINOSUS WOODHOUSII* *Baird and Girard*. Woodhouse's Toad.

Woodhousii is a toad of the mountains and canyons, and it is not likely that typical specimens will be found to occur in any but the extreme western portion of the State. Cope records it from Clarendon under the name of *Bufo lentiginosus, variety*. Mr. C. M. Barber sent me several from El Paso and I have a number of others which I personally collected in the mountainous districts in Brewster and Jeff Davis Counties.

PELOBATIDÆ

168. *SCAPHIOPUS HURTERII* *Strecker*. Hurter's Solitary Spadefoot.

Known only from Waco, the type locality, and Refugio. If this, as has been suggested, is merely a form of *holbrookii*, it is certainly distinct enough to entitle it to a sub-specific name. It is one of the rarest of Texas amphibians.

169. *SCAPHIOPUS COUCHII* *Baird and Girard*. Couch's Spadefoot.

Southern Texas, west along the Rio Grande Val-

ley to El Paso, north in the east-central district to Erath and Somervell counties. While this animal is common in the latter district, it evidently does not range east of the valley of the Brazos River. In Southern Texas, it is one of the most abundant of the toad-like amphibians and during the rainy season fairly swarms in the pools and ditches.

170. SCAPHIOPUS HAMMONDII *Baird*. Western Spadefoot.

Western Texas. I have specimens from El Paso that were collected by Townsend and Barber. Prof. Cope records it from Helotes.

171. SCAPHIOPUS HAMMONDII BOMBIFRONS *Cope*. Plains Spadefoot.

Panhandle and southern plains regions, abundant. Cope records it from "Llano Estecado," Clarendon and Tule Canyon. My specimens are from various localities in Armstrong County.

CAUDATA

PLEURODELIDÆ

172. DIEMYCTYLUS VIRIDESCENS VIRIDESCENS *Rafinesque*.
American Newt.

Cope records a specimen of the form *miniatus* from the Brazos River, Texas. Mr. J. D. Mitchell includes it in his manuscript list of the reptiles and amphibians of Victoria County. In the introduction to this list it is stated that the naturalists at the National Museum are responsible for the identifications. This record may be based on the land form of *meridionalis*.

173. DIEMYCTYLUS VIRIDESCENS MERIDIONALIS *Cope*. Texas Newt.

This subspecies inhabits principally the southern and southeastern sections of the State. North into East Central Texas, it ranges to Falls and McLennan Counties. In the lagoons and bayous of the Big

Thicket and adjacent region, it probably grades into *viridescens*, but Southern Texas specimens are quite different from the typical form of that subspecies. The great majority of specimens from Houston and Laguna Lake are very near *viridescens*.

PLETHODONTIDÆ

174. *PLETHODON GLUTINOSUS* *Green*. Slimy Salamander.

Eastern, Central and Southeastern Texas. Probably common in some sections, but at present known only to inhabit a few scattered localities. Cope records it from Helotes and New Braunfels. I have collected several in McLennan County and two near Cleveland, Liberty County.

AMBYSTOMIDÆ

175. *AMBYSTOMA OPACUM* *Gravenhorst*. Marbled Salamander.

The northern and eastern sections. One example collected near Hewitt, McLennan County, is the only Texas example that has ever passed through my hands. Mr. Julius Hurter collected two at Paris, and Cope records it from the Wichita River. It is probably a common species in the bayou country from northeast of Houston to the Louisiana boundary, but I have never been able to visit that section during salamander season.

176. *AMBYSTOMA MACULATUM* *Shaw*. Spotted Salamander.

Cope records a specimen in the National collection from "between Indianola and El Paso." The same collection contains specimens from Fort Towson, Oklahoma, only a few miles across the Red River from Texas. This salamander is probably more or less common in Northeastern Texas, but I am very doubtful of the "Indianola to El Paso" specimen having

ever been collected in either the southern or western sections of the State—perhaps this is another case of transposed labels.

177. AMBYSTOMA TIGRINUM *Green*. Tiger Salamander.

Western Texas from the northern boundary of the Panhandle south to the Rio Grande River, east across the Callahan Divide and Edwards Plateau to the granite country. Eastern limits of State range not yet known. Baird's types of *Ambystoma prosperina* were from the sources of the Salado River. Cope's localities are Big Springs, Canyon Blanco, El Paso, Tule Canyon and San Elizario, the specimen from the last-named locality being recorded under the name of *Ambystoma tigrinum californiense* Gray.

The Baylor University specimens are from Garza, Armstrong, Burnet, Lampasas and Pecos Counties. The finest specimens of the larval form in the collection were obtained near Barstow, Pecos County, by Mr. A. L. Gooch.

178. AMBYSTOMA MICROSTOMUM *Cope*. Small-mouthed Salamander.

This is the common salamander of the eastern half of Texas. Cope records it from Dallas and Mr. Hunter writes me that he obtained it at Paris. The herpetological collection of the Baylor Museum contains specimens from Burnet, Houston, Laguna, Refugio, Victoria, Waco, Bryan, Calvert and Cleveland.

179. AMBYSTOMA TEXANUM *Matthes*. Texan Salamander.

Known only from San Antonio and Waco.

PROTEIDÆ

180. TYPHLOMOLGE RATHBUNI *Stejneger*. Texas Blind Salamander.

Known only from the type locality, San Marcos, Hays County. None have been recorded since the original type lot were expelled in the water from

an artesian well in 1896. Like the *Proteus* of Europe, this species has a very limited range. Its strangest peculiarity is the difference in the length of the limbs, no two in the same specimen being exactly the same. Dr. Stejneger suggests that the limbs are principally used as feelers when the animal works its way along the edges of the rocky walls of underground lakes.

SIRENIDÆ.

181. *SIREN LACERTINA* *Linn.* Great Siren: Mud Eel.

The few scattered Texan localities from which this species has been recorded indicate that its range covers the entire eastern half of the State west even beyond the 100th Meridian. Cope's localities are San Diego, Duval County, and Upson, Maverick County. Mr. Mitchell reports it from Victoria and Calhoun Counties. According to the Dallas News, it has been captured in West Dallas (specimen figured). I have personal information of its occurrence at Athens, Henderson County, in the Trinity River bottoms near Fort Worth, at Kaufman, Cleveland and in Refugio County, in all of which localities specimens have been obtained either by me or others. It is found in many of the forest-enclosed lakes of Eastern Texas and is known to the natives as the "lamprey eel" and by them deemed to be very poisonous. Some of these natives have described a four-limbed "lamprey" or "lampern," which may possibly be *Amphiuma means* Garden, which is extremely likely to range into this section of Texas.

HYPOTHETICAL LIST.

1. *CHRYSEMYS ORNATA* *Gray.* Ornate Terrapin.

A Mexican and Central American species included

in the Brown list, on the strength, so the author wrote me, of one of Cope's references ("from San Diego, Duval County." Proc. U. S. Nat. Mus., p. 397.) I have not seen the article, but am satisfied that a mistake has been made somewhere. In Cope's "Batrachians and Reptiles of Central America and Mexico" (Bull. U. S. Nat. Mus., No. 32) *Chrysemys ornata* is recorded from the following localities: Presidio (Forrer), Mazatlan (Forrer, Colley), Costa Rica and Panama. As specimens sent to the British Museum from San Diego are likely to have been collected in almost any other locality, I am not always surprised at some of the species that are supposed to have come from there.

2. *SCELOPORUS JARROVII* Cope. Yarrow's Lizard.

Recorded from Duval County by Dr. Boulenger (Proc. Zool. Soc., London, 1897). A common species in Arizona and the State of Sonora, Mexico, but not likely to occur in the locality mentioned. This record, unless the locality label is incorrect, may be based on a melanistic specimen of *Sceloporus torquatus poinsettii*. It is hardly probable that three such closely related forms as *ornatus*, *jarrovii* and *poinsettii* should occur in the same locality.

3. *HELODERMA SUSPECTUM* Cope. Gila Monster: Beaded Lizard.

Cope, in the Report of the U. S. National Museum for 1898, page 483, lists a specimen of the poison lizard from Fort McDowell, Texas. If this species really occurs in Western Texas, it seems strange that no specimens have been obtained there in recent years by the different parties of zoological collectors that have traversed that region. I carefully searched several localities where Gila monsters were supposed to be found, but without success. At Elephant Mesa, Brewster County, we saw many large specimens of

Crotaphytus collaris baileyi, and I am inclined to believe that some of my informants believed these to be what I was after. The United States Biological Survey party failed to find Gila monsters in any of the trans-Pecos counties, as did also Messrs. Stone and Rehn in El Paso County, and the collectors for the Zoological Society of Philadelphia in the region south of Pecos. A friend informed me that several Texas Gila monsters were on exhibition in a show window in El Paso, but it afterward developed that these had been shipped in from Arizona.

4. *BARISSIA IMBRICATA* Wiegmann. Plated Lizard.

This species was recognized as a Texas animal by Ditmars in "The Reptile Book" and by the late Arthur Erwin Brown in his faunal list of Texas reptiles. The former wrote me that he could not now recall his authority, and Dr. Brown said that, as in the case of *Chrysemys ornata*, "it was on the strength of one of Cope's references." I hope that these authors did not base their authority on U. S. National Collection No. 3096, a specimen labeled "Between El Paso and San Diego" (California!!).

5. *ANNIELLA TEXANA* Boulenger. Texas Blind Worm:
Footless Lizard.

Described from a single specimen, supposed to have been collected at El Paso (Annals and Magazine of Natural History, London, Vol. 20, 1887, page 50). Probably one of the forms of *Anniella pulchra* Gray, from the Pacific region, with incorrect locality label, as was suggested by Cope.

6. *REGINA LEBERIS* Linn. Queen Snake: Leather Snake.

A specimen of this species in the National Museum collection is labeled "Owassa, Texas." I cannot find the location of this place, although I have consulted maps, gazetteers and postal guides galore.

7. *CROTALUS ADAMANTEUS Beauvois.*

Diamond Rattlesnake.

According to Mr. J. D. Mitchell in his report on the Poisonous Snakes of Texas, the eastern diamond rattlesnake was formerly abundant in Calhoun, Harris, Jackson, Lavaca, Matagorda and Victoria Counties. In view of the hiatus existing in the known range of this species, I incline to the belief that these specimens must have merely represented a darker and more distinctly marked coast race of *Crotalus atrox*.

BIBLIOGRAPHY.

1841. (1) *Kennedy, William.*
Texas: The Rise, Progress and Prospects of the Republic of Texas. (In two volumes.) London R. Hastings, 1841, Vol. 1.
Notes on the Alligator and other reptiles.
1852. (2) *Baird, Spencer F., and Charles Girard.*
Characteristics of some New Reptiles in the Museum of the Smithsonian Institution. (First Part.) Proc. Acad. Nat. Sci. Phila., 1852-3 (1854), pp. 68-70.
The following species are described from Texas examples:
Crotaphytus wislizenii B. and G., n. s. (New Mexico and Texas.)
Phrynosoma modestum Girard, n. s.
Heterodon nascius B. and G., n. s.
Churchillia bellona B. and G. (*Pityophis sayi bellona* B. and G.) is described from the Rio Grande and the type may possibly have been collected in Texas territory.
1852. (3) *Baird, Spencer F., and Charles Girard.*
Reptiles (of the Valley of the Great Salt Lake). Stansbury's Exploration and Survey of the Valley of the Great Salt Lake.
Philadelphia, 1852, pp. 336-353.
Contains references to Texan reptiles.
1852. (4) *Baird, Spencer F., and Charles Girard.*
Characteristics of some New Reptiles in the Museum of the Smithsonian Institution. Second Part. Containing the species of the Saurian order, collected by John H. Clark, under Col. J. D. Graham, head of the Scientific Corps, U. S. and Mexican Boundary Commission, and a few others from the adjoining territories, obtained from other sources, and mentioned under their special headings.

Proc. Acad. Nat. Sci. Phila., 1852, VI., pp. 125-9.

The following species are described from Texas specimens:

Holbrookia texana (Troschel) B. and G. (Rediscription.)

Holbrookia affinis B. and G., n. s.

(=*H. texana* Troschel.)

Holbrookia propinqua B. and G., n. s.

Uta ornata B. and G., n. s.

Sceloporus poinsettii B. and G., n. s.

Sceloporus thayerii B. and G., n. s.

(Probably *Sceloporus consobrinus* Baird and Girard.)

Cnemidophorus marmoratus B. and G., n. s.

(=*C. tessellatus* Baird.)

Cnemidophorus grahamii B. and G., n. s.

Cnemidophorus gularis B. and G., n. s.

1852. (5) *Baird, Spencer F., and Charles Girard.*

Characteristics of some New Reptiles in the Museum of the Smithsonian Institution. Third Part. Containing the Batrachians in the collection made by J. H. Clark, Esq., under Col. J. D. Graham, on the United States and Mexican Boundary.

Proc. Acad. Nat. Sci. Phila., 1852, VI., p. 173.

Species described from Texas specimens:

Amblystoma prosperina B. and G., n. s.

(=*Ambystoma tigrinum* Green.)

Rana areolata B. and G., n. s.

Bufo punctatus B. and G., n. s.

Bufo granulatus B. and G., n. s.

(=*B. valliceps* Wiegmann.)

1852. (6) *Hallowell, Edward.*

Descriptions of New Species of Reptiles inhabiting North America.

Proc. Acad. Nat. Sci. Phila., 1852, VI., pp. 177-182.

Species described from Texas:

Sceloporus marmoratus Hallow., n. s.

(=*S. variabilis* Wiegmann.)

Sceloporus delicatissimus Hallow., n. s.
(=*S. variabilis* Wiegmann. Adult male.)
Phrynosoma planiceps Hallow., n. s.
(=*P. cornutum* Harlan.)

1852. (7) *Hallowell, Edward.*
On a New Genus and Three New Species of Reptiles inhabiting North America.
Proc. Acad. Nat. Sci. Phila., 1852, VI, pp. 206-209.
Lamprosaurus guttulatus Hallow., n. s.
(=*Eumeces guttulatus* Hallowell.)
Type from Fort Fillmore, New Mexico. "Found also at El Paso." (Page 206.)

1853. (8) *Baird, Spencer F., and Charles Girard.*
Catalogue of North American Reptiles in the Museum of the Smithsonian Institution. Part 1—Serpents. Washington, Jan. 1, 1853, 8vo. pp. XVI, 172.

Species described from Texas:
Crotalus atrox B. and G., n. s.
Crotalophorus consors B. and G., n. s.
(=*Sistrurus catenatus consors* B. and G.)
Toxicophis pugnax B. and G. n. s.
(=*Agkistrodon pisvicanus* Lacepede.)
Elaps tenere B. and G., n. s.
(=*Elaps fulvius* Linn.)
Elaps tristis B. and G., n. s.
(=*Elaps fulvius* Linn.)
Eutaenia dorsalis B. and G., n. s.
(=*Eutaenia sirtalis parietalis* B. and G.)
Eutaenia marciana B. and G., n. s.
Nerodia woodhousei B. and G., n. s.
(=*Tropidonotus sipedon transversus* Hallow.)
Regina grahamii B. and G., n. s.
Regina clarkii G. and G., n. s.
Heterodon cognatus B. and G., n. s.
(=*Heterodon platyrhinus* Latreille.)
Scotophis lindheimerii B. and G., n. s.
(=*Callopeltis obsoletus linheimerii* B. and G.)
Scotophis emoryii B. and G., n. s.

(=*Callopeltis emoryi* B. and G.)
Masticophis ornatus B. and G. n.s.
(=*Zamenis taeniatus ornatus* B. and G.)
Masticophis schotti B. and G. n. s.
(=*Zamenis taeniatus* B. and G.)
Leptophis majalis B. and G., n. s.
(=*Cyclophis aestivus* B. and G.)
Diadophis docilis B. and G., n. s.
(=*Diadophis amabilis* B. and G.)
Tantilla gracilis B. and G., n. s.
Rena dulcis B. and G., n. s.
(=*Glauconia dulcis* B. and G.)

1853. (9) *Girard, Charles.*

A Monographic Essay on the Genus *Phrynosoma*.
Stansbury's Exploration and Survey of the Valley
of the Great Salt Lake. Washington, 8 vo., 1853, pp.
354-360.

Texan species figured and discussed:

Phrynosoma modestum Girard.

Phrynosoma cornutum Harlan.

1853. (10) *Marcy, R. B.*

Marcy & McClellan's Exploration of the Red River
of Louisiana in 1852. Washington, 8 vo., 1853, pp.
1-177.

A careful reading of the narrative portion of this
report gives an approximate idea of the localities
where Shumard's "Brazos River" and Marcy's "Red
River" specimens were obtained.

1853. (11) *Baird, Spencer F., and Charles Girard.*

Reptiles [of the Red River Expedition].

Marcy and McClellan's Exploration of the Red
River of Louisiana in the year 1852. Washington,
8 vo., 1853, pp. 217-244.

Sceloporus consobrinus B. and G. is described in
this report. No locality is given, but the type was
probably from Northwestern Texas.

1854. (12) *Hallowell, Edward*.
Reptiles [of Texas, New Mexico and Arizona].
Sitgreave's Expedition down the Zuni and Colorado Rivers in 1852. Washington 8 vo., 1854, pp. 106-147.
Contains figures of and further references to Texas species previously described by the author in Vol. VI. (1852) of the Proceedings of the Academy of Natural Sciences of Philadelphia.
1854. (13) *Baird, Spencer F.*
Description of New Genera and Species of North American Frogs.
Proc. Acad. Nat. Sci. Phila, 1854, VII., pp. 59-62.
The following are described from Texas:
Holocoetes clarkii, n. s.
(=*Chorophilus triseriatus* Wied.)
Hyla vanvlietti Baird, n. s.
(=*Smilisca baudinii* D. and B.)
1854. (14) *Girard, Charles*.
A list of the North American Bufonids, with diagnosis of New Species.
Proc. Acad. Nat. Sci. Phila., 1854, VII., pp. 86-88.
The writer lists five species from Texas. Three of these are described as new.
Bufo speciosus Girard, n. s.
(=*Bufo compactilis* Weigmann.)
Bufo cognatus Say.
Bufo punctatus Baird and Girard.
Bufo debilis Girard, n. s.
Bufo nebulifer, Girard, n. s.
(=*Bufo valliceps* Weigmann.)
1854. (15) *Hallowell, Edward*.
Notices of New Reptiles from Texas.
Proc. Acad. Nat. Sci. Phila., 1854, VII., pp. 192-193.)
Crotalus ornatus Hallow, n. s.
(=*Crotalus molossus* Baird and Girard.)

Cnemidophorus guttatus Hallow., n. s.
(=*Cnemidophorus gularis* Baird and Girard,
male.)

1857. (16) *Agassiz, Louis.*

Contributions to the Natural History of the United States. First Monograph, Vol. 1. The Geographical Distribution of the Testudinata. Boston, Little, 1857, pp. 1-452.

Contains localities for Texas turtles. The following species are described from the State:

Aspidonectes emoryi Agassiz.

Aromochelys tristycha Agassiz.

Xerobates berlandieri Agassiz.

1859. (17) *Girard, Charles.*

Herpetological Notices.

Proc. Acad. Nat. Sci. Phila., 1859, XI., pp. 169-170.

Engystoma texense Girard, n. s.

1859. (18) *Baird, Spencer F.*

Descriptions of New Genera and Species of North American Lizards in the Museum of the Smithsonian Institution.

Proc. Acad. Nat. Sci. Phila., 1858 (1859), V., pp. 253-256.

Crotaphytus reticulatus Baird, n. s.

Stenodactylus variegatus Baird, n. s. This is described from Arizona and Texas. The Arizona form is now known as *Coleonyx variegatus* Baird, while the Texas species has since been described as *Coleonyx brevis* by Stejneger.

Gerrhonotus infernalis Baird, n. s.

(=*G. liocephalus infernalis* Baird.)

Plestiodon tetragrammus Baird, n. s.

(=*Eumeces tetragrammus* Baird.)

1859. (19) *Baird, Spencer F.*

United States and Mexican Boundary Survey under the order of Lieut. Col. W. H. Emory, Major

First Cavalry, and United States Commissioner.

Reptiles of the Boundary, by Spencer F. Baird,
1859. Quarto, pp. (2) 3-55, p. 11. XLI.

This report lists 87 species from Texas. These
are divided by classes as follows:

Turtles	8
Crocodylians	1
Lizards	28
Serpents	34
Frogs and Toads	13
Tailed Amphibians	3

1859. (20) *Baird, Spencer F.*

Reptiles.

Pacific Railroad Surveys. General Report on
Zoology, 1859, Vol. X., p. 11. XXIV.-XXXVI. (no
text).

Twenty-five species are figured from Texan ex-
amples.

1859. (21) *Hallowell, Edward.*

Report on Reptiles collected on the Survey. No. 2.

Pacific Railroad Surveys. General Report on
Zoology. 1859, Vol. X., pp. 23-24.

Figures *Crotalus ornatus* Hallow (= *Crotalus mo-*
lossus B. and G.) from Texas.

1859. (22) *Baird, Spencer F.*

Report on the Reptiles of the Route. No. 4.

Pacific Railroad Surveys. General Report on
Zoology. 1859, Vol. X., pp. 37-45.

Records 14 species of reptiles and 4 of amphibians
from various localities in Texas.

1860. (23) *Cope, Edward D.*

Catalogue of Colubridæ in the Museum of the
A. N. S. of Phila. 1 Calamarinæ.

Proc. Acad. Nat. Sci. Phila., 1860, pp. 74-79.

Tantilla hallowellii Cope, n. s.

(= *Tantilla gracilis* Baird and Girard.)

1860. (24) *Cope, Edward D.*

Catalogue of the Colubridæ in the Museum of the Academy of Natural Sciences of Philadelphia with notes and descriptions of new species. Part 2.

Proc. Acad. Nat. Sci. Phila., 1860, pp. 241-266.

1860. (25) *Kennicott, Robert.*

Descriptions of New Species of North American Serpents in the Museum of the Smithsonian Institution, Washington.

Proc. Acad. Nat. Sci. Phila., 1860, pp. 328-338.

Diadophis texensis Kenn, n. s.

(=*Diadophis amabilis* Baird and Girard.)

Tantilla nigriceps Kenn, n. s.

1861. (26) *Kennicott, Robert.*

On three new forms of Rattlesnakes.

Proc. Acad. Nat. Sci. Phila., 1861, pp. 206-208.

Caudisona lepida Kenn, n. s,

(=*Crotalus lepidus* Kenn.)

1867. (27) *Cope, Edward D.*

A Review of the Species of the *Amblystomidae*.

Proc. Acad. Nat. Sci. Phila., 1867, pp. 167-211.

Salamandra texana Matthes.

(=*Ambystoma texanum* Matthes), Redescribed.

1875. (28) *Yarrow, Henry C.*

Report on a Collection of Batrachians and Reptiles made in portions of Nevada, Utah, California, Colorado, New Mexico and Arizona.

U. S. Geographical Surveys West of the 100th Meridian. Vol 5 (Zoology), 1875, pp. 509-584.

Refers to certain species as ranging into Texas.

1875. (29) *Coues, Elliott.*

Synopsis of the Reptiles and Batrachians of Arizona.

U. S. Geographical Surveys West of the 100th Meridian. Vol. 5 (Zoology), pp. 585-633.

Contains a few references to Texas reptiles.

1875. (30) *Cope, Edward D.*
Check-List of North American Reptilia and Batrachia.
Bull. U. S. Nat'l. Museum, 1875, No. 1, pp. 1-104.
1878. (31) *Coues, Elliott and Henry C. Yarrow.*
Notes on the Herpetology of Dakota and Montana.
Bull. U. S. Geological Survey of the Territories.
1878, Art. XI., pp. 259-291.
Refers to Texas reptiles.
1878. (32) *Cope, Edward D.*
A Texan Cliff Frog.
American Naturalist, 1878, XII., p. 186.
An account of the habits of *Lithodytes latrans*
Cope, fully described in Bull. U. S. Nat'l. Mus., No.
17, page 25 (1880).
1878. (33) *Cope, Edward D.*
A new Genus of *Cystignathidae* from Texas.
American Naturalist, 1878, XII., pp. 252-253.
Syrrhopus marnockii Cope, n. s. Only a few
words of description.
1880. (34) *Cope, Edward D.*
On the Zoological Position of Texas.
Bull. U. S. Nat. Museum, 1880, No. 17, pp. 1-51.
Records 64 species and subspecies of reptiles and
17 of amphibians from the State.
- | | |
|--------------------------------------|----|
| Crocodilians | 1 |
| Turtles | 7 |
| Lizards | 21 |
| Serpents | 35 |
| Toads and Frogs..... | 13 |
| Salamanders | 4 |
| <hr/> | |
| Total number of species..... | 81 |
| New species and varieties described: | |

Holbrookia lacerata Cope, n. s.
 (= *Holbrookia maculata lacerata* Cope.)
Eumeces brevilineatus Cope, n. s.
Eumeces pachyurus Cope, n. s.
Opheosaurus ventralis sulcatus Cope, new variety.
Eutaenia cyrtopsis ocellata Cope, new variety.
 (= *Eutaenia eques* Reuss.)
Contia episcopa torquatus Cope, new variety.
 (= *Contia episcopa isozona* Cope.)
Hyla femoralis var. *chrysoscelis* Cope, new variety.
 (= *Hyla versicolor chrysoscelis* Cope.)
Lithodytes latrans Cope.
Syrrhopus marnockii Cope.

First noticed in the American Naturalist, XII., pp. 186 and 252, but here fully described.

Diemyctylus viridescens meridionalis Cope, new subspecies.

Coluber bairdi Yarrow, n. s.

The turtle recorded as *Cinosternum pennsylvanicum*, Boc. is not that species, but the one afterward described by Baur as *C. louisianae*. *Uta symmetrica* Baird = *U. ornata* B. and G. *Sceloporus scalaris* Wiegmann should be *S. variabilis* Wiegmann. *Cnemidophorus sexlineatus* Linn. here includes *C. gularis* B. and G. *Chorophilus ocularis* Daudin should be *C. ornatus* Holbrook. The "*Hyla femoralis*" is not that species, but a variety of *Hyla versicolor* LeConte. *Scaphiopus varius* Cope is a synonym of *Scaphiopus couchii* B. and G.

1881. (35) *True, Frederick W.*

The North American Land Tortoises of the Genus *Xerobates*.

Proc. U. S. Nat'l. Museum, 1881, pp. 434-449.

1882. (36) *Yarrow, Henry C.*

Check-List of North American Reptilia and Batrachia.

Bull. U. S. Nat'l. Museum, 1882, No. 24, pp. 1-249.

Lists specimens from Texas in the National Museum Collection.

1883. (37) *Garman, Samuel*.
The Reptiles and Batrachians of North America. Memoirs Mus. Comp. Zool., 1883, VIII., No. 3 (Serpents).
Virginia inornata Garman, n. c.
(=*Amphiardis inornatus* Garman.)
Stenostoma rubellum, Garman, n. s.
(=*Glauconia dulcis* B. and G.)
1884. (38) *Cragin, F. W.*
Notes on some Southwestern Reptiles in the Cabinet of Washburn College.
Trans. Kan. Acad. Science, 1884, pp. 6-8.
1886. (39) *Cope, Edward D.*
Synonymic List of the North American Species of *Bufo* and *Rana*, with descriptions of some new species of Batrachia, from specimens in the National Museum.
Proc. Am. Philos. Soc., Oct., p. 515 (1886).
1887. (40) *Garman, Samuel*.
Reptiles and Batrachians from Texas and Mexico. Bull. Essex. Inst., 1887, XIX.
1887. (41) *Boulenger, G. A.*
Catalogue of the Lizards in the British Museum. London, 1887, Part III.
1887. (42) *Boulenger, G. A.*
Descriptions of New Reptiles and Batrachians in the British Museum. Part III.
Annals and Magazine of Natural History, London, 1887, XX., pp. 50-53.
Anniella texana Boulenger, n. s. Based on a specimen said to be from El Paso, but the locality is probably incorrect.
Hyla copii Boulenger, n. s.
(=*Hyla arenicolor* Cope.)

1888. (43) *Cope, Edward D.*
Catalogue of Batrachia and Reptilia brought by William Taylor from San Diego, Texas.
Proc. U. S. Nat'l. Mus., 1888, XI., pp. 395-398.
Lysoptychus lateralis Cope, n. s.
(=*Sceloporus couchi* Baird.)
Hypopachus cuneus Cope, n. s.
1888. (44) *Cope, Edward D.*
On a New Species of *Bufo* from Texas.
Proc. U. S. National Museum, 1888, XI.
Bufo aduncus, Cope, n. s.
(=*Bufo* sp. ?. Type lost.)
1888. (45) *Boulenger, G. A.*
On a rare American Newt, *Molge meridionalis* Cope.
Ann. of Nat. Hist. (6), Vol. 1, Jan., 1888, p. 24.
1889. (46) *Cope, Edward D.*
The Batrachia of North American.
Bull. U. S. Nat. Museum, 1889, No. 34.
This valuable work contains many Texas locality records, including lists of all batrachians in the National collection up to the time of its publication.
1890. (47) *Stejneger, Leonhard.*
Annotated List of Reptiles and Batrachians collected by Dr. C. Hart Merriam and Vernon Bailey on the San Francisco Mountain Plateau and Desert of the Little Colorado, Arizona, with Descriptions of New Species.
North American Fauna, No. 3, 1890, pp. 103-118.
References to Texan forms of *Holbrookia*, etc.
1891. (48) *Stejneger, Leonhard.*
Notes on *Sceloporus variabilis* and its geographical distribution in the United States.
Proc. U. S. Nat'l. Museum, 1891, XIV., pp. 485-488.
1891. (49) *Stejneger, Leonhard.*
Notes on some North American Snakes.

- Proc. U. S. Nat'l. Museum, 1891, XIV., pp. 50-505.
Notes on specimens from Brownsville and other localities.
1892. (50) *Garman, Samuel*.
On Texan Reptiles Collected by F. W. Wamsley.
Bull. Essex Inst., 1892, XXIV., pp. 1-12.
Notes on specimens collected in Matagorda County.
1892. (51) *Cope, Edward D.*
The Batrachia and Reptiles of Northwestern Texas.
Proc. Acad. Nat. Sci., Phila., 1892, pp. 331-33.
Based on a collection made between Big Springs (Texas Pacific Railroad) and Clarendon.
1892. (52) *Cope, Edward D.*
A synopsis of the *Teiid* Genus *Cnemidophorus*.
Trans. Am. Philos. Soc., 1892, XVII., pp. 27-52.
Cnemidophorus gularis sericeus Cope. n. subsp.
1893. (53) *Cope, Edward D.*
On the Batrachia and Reptilia of the Plains at Lat. 36 degrees, 30 minutes.
Proc. Acad. Nat. Sci., Phila., 1893, pp. 386-388.
1893. (54) *Boulenger, G. A.*
Catalogue of the Snakes in the British Museum.
London, 1893, Part 1.
1893. (55) *Baur, George*.
Notes on the Classification and Taxonomy of the *Testudinata*.
Proc. Am. Philos. Soc., 1893, pp. 210-225.
III. The Genera of the *Trionychidae*, pp. 213-7221.
IV. The Species of the Genus *Pseudemys*, pp. 221-225.
Pseudemys texana Baur, n. s.
1893. (56.) *Stejneger, Leonhard*.
An Annotated list of the Reptiles and Batrachians Collected by the Death Valley Expedition in 1891, with Descriptions of New Species.

- North American Fauna, 1893, No. 7, pp. 159-228.
Coleonyx brevis Stejneger, n. s.
Hypsiglena texana Stejneger, n. s.
1893. (57.) *Stejneger, Leonhard.*
The Poisonous Snakes of North America.
Report U. S. National Museum, 1893, pp. 337-487.
1894. (58) *Boulenger, G. A.*
Catalogue of the Snakes in the British Museum.
Part II, London (1894).
1894. (59) *Cragin, F. W.*
Herpetological notes from Kansas and Texas.
Colorado College Studies (Science Series) No. 17,
1894, pp. 37-39.
1894. (60) *Taylor, W. Edgar.*
The Box Tortoises of North America.
Proc. U. S. Nat'l Museum, 1894, XVII., pp. 573-88.
1895. (61) *Cope, Edward D.*
On some new North American Snakes.
American Naturalist, 1895, XXIX., pp. 676-681.
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9. *AROMOCHELYS CARINATUS* Gray. Keeled Mud Turtle.

I have collected this species in only one locality, i. e., the San Jacinto River, Liberty County. It is probably more or less common in many localities in Eastern Texas, but very little work has been done along herpetological lines east of the Brazos Valley and the species may be much rarer than I at present suspect. Yarrow, in his Check-list of North American Reptiles, records *carinatus* from the Medina River, San Pedro and San Jacinto, all localities in Southern Texas. Mr. Louis Garni sent me a young example collected near Boerne, Kendall County.

TESTUDINIDÆ

10. *CHRYSEMYS TROOSTI* Holbrook. Troost's Terrapin.

Mr. Garman records a specimen of this turtle from Deming's Bridge, Matagorda County.

11. *CHRYSEMYS ELEGANS* Wied. Cumberland Terrapin.

This terrapin is distributed over the entire State. It has been collected at Texarkana and at Brownsville. It is abundant in springs and streams in North-western Texas and has been reported from as far west as Pecos.

12. *CHRYSEMYS MOBILENSIS* Holbrook. Mobile Terrapin.

This larger representative of the southeastern *Chrysemys concinna* Le Conte probably occurs in Texas, although I have not been able to obtain a specimen. The literature in regard to this species and *Chrysemys texana* Baur is so hopelessly confused that it is an impossibility to decide to which one a reference really applies. If the Alabama specimens that I have examined are really *mobilensis*, it is a species very distinct from *texana*. Dr. Yarrow, in his North American Check-list, records two specimens of *Chrysemys concinna* from Brownsville. I suspect that this reference applies to *mobilensis*. As this turtle has so often been recorded from Texas, I

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Reptiles And Amphibians of Texas Strecker									
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16. GRAPTEMYS GEOGRAPHICA *Le Seur*. Geographic Terrapin.

Mr. Brimley has received specimens of this turtle from Austin. I have collected it in the Colorado River, not far from that city, in the Brazos River,